

## **REPUBLIC OF BOTSWANA**

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### **Agricultural Services Support Project (ASSP)**

### **Supervision Report**

### **Main Report and Appendices**

Mission Dates: 3<sup>rd</sup> – 15<sup>th</sup> October 2016  
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## Abbreviations and Acronyms

AD	Agricultural Demonstrator (Extension Agent)
ALDEP	Arable Lands development Programme
ASC	Agricultural Service Centre
ASSP	Agricultural Services Support Project
BAMB	Botswana Agricultural Marketing Board
BCA	Botswana College of Agriculture
BIUST	Botswana International University of Science and Technology
CA	Conservation Agriculture
CBD	Convention on Biodiversity
CBOs	Community-Based Organisations
CEDA	Citizen Entrepreneurial Development Agency
CF	Conservation Farming
COSOP	Country Strategic Opportunities Paper
DAR	Department of Agricultural Research
DCP	Department of Crop Production (MOA)
DEA	Department of Environmental Affairs
EA	Extension Area
FAO	Food and Agricultural Organization
FFS	Farmer Field School
FNB	First National Bank
GDP	Gross Domestic Product
GoB	Government of Botswana
ICT	Information & Communications Technology
ISPAAD	Integrated Support Programme for Arable Agricultural Development
LEA	Local Enterprise Authority
LGRD	Ministry of Local Government and Roads Department
M&E	Monitoring and Evaluation
MEWT	Ministry of Environment, Wildlife and Tourism
MFDP	Ministry of Finance and Development Planning
MMEWR	Ministry of Minerals Energy and Water Resources
MOA	Ministry of Agriculture
NAFTC	National Agricultural food & Technology Centre
NDB	National Development Bank
NDP	National Development Plan
NT	No-till
PMT	Project Management Team
PSC	Project Steering Committee
RIMS	Results Impact Management System
RTC	Rural Training Centre
SPEDU	Selibe -Phikwe Economic Development Unit
UB	University of Botswana
UNCCD	United Nation Convention for Combating Desertification
UNFCCC	United Nation Forum on Convention for Climate Change

## A. Introduction<sup>1</sup>

1. The International Fund for Agricultural Development (IFAD) and the Government of Botswana (GoB)<sup>2</sup> fielded a joint<sup>3</sup> Mission to the country during the period 3<sup>rd</sup> to 15<sup>th</sup> October 2016 to review implementation progress and, where required, provide implementation support to the Agricultural Services Support Programme (ASSP). The objective of the Mission were: a) assess the overall implementation progress of the Project and the likelihood of achieving the development objectives, identifying implementation bottlenecks, if any, and advising how to resolve them; b) review the extent to which the 2016/17 ASSP approved Annual Work Plan and Budget (AWPB) was implemented; c) review fiduciary aspects, focussing on financial management, disbursement and procurement issues and assess provision of counterpart funds in terms of amount and timeliness, where applicable and compliance with loan covenants; e) undertake field visits to interact with the beneficiaries to assess benefits reaching them and receive their views on how improvements can be made and systems created sustained; and f) overview of issues affecting sustainability related to institution building, rural poor empowerment, beneficiary participation, responsiveness of service providers and exit strategy.

2. The Project is being implemented with financial and technical support from IFAD, GoB and the beneficiaries. The Project goal is to “*contribute to economic diversification, reduction of rural poverty and food insecurity, and improved livelihoods of rural communities*”. The development objective is “*to achieve a viable and sustainable smallholder agricultural sector based on farming as a business, which is not reliant on subsidies or welfare measures*”. The Department of Crop Production of the Ministry of Agricultural Development and Food Security (MoADFS) is the institutional host and is responsible for the ASSP implementation. Key expected results include: a) an increase in household incomes from crop production for at least 13,000 of the 20,000 households targeted by the Project; and b) an increase in average cereal yields from 0.25 t/ha to 1.0 t/ha. In addition, the ASSP is to construct and render functional 15 Agricultural Service Centres (ASCs) located in 7 districts and build and implement a 29 ha irrigation scheme using treated wastewater to grow horticultural produce.

3. Total Project costs, including physical and price contingencies, are estimated at about USD25 million. IFAD is to finance about USD5.7 million (comprising of an IFAD loan of USD4.04 million and an IFAD grant of USD1.6 million). The Government of Botswana is to contribute at least USD19 million, including duties and taxes, while beneficiaries will contribute a minimum of about USD0.3 million, mainly in labour and materials. The ASSP Financing Agreement between IFAD and GoB was signed and became effective on 22<sup>nd</sup> February 2012. Accordingly, Project Completion is scheduled for 31<sup>st</sup> March 2017 and Project Closure is slated for 30<sup>th</sup> September 2017. A Mid-Term Review of the Project was undertaken in May 2014.

4. The Mission met and held discussions with Dr Kekgonne E. Baipoledi, Deputy Permanent Secretary (Technical Service) and Chairman of the Project Steering Committee; Mr Galeitsiwe Ramokapane, Acting Deputy Permanent Secretary (Support Services) and also Director of Crop Production; Ms Velleminah S. Pelokgale, Central District Crop Production Officer; and Ms Maria Tsamaase, Southern District Crop Production Officer. Detailed discussions were held with the ASSP Project Management Team (PMT) on issues related to the Project's implementation progress, including any constraints encountered. During the period 6<sup>th</sup> – 8<sup>th</sup> and 10<sup>th</sup> October 2016, the Mission visited selected Project sites in Central and Southern District, respectively, to interact with the target groups and assess benefits to them. The Mission visited the Palapye wastewater irrigation scheme site to ascertain progress being made. The Mission also visited the Serowe wastewater irrigation scheme that is under construction and a borehole site in Leshibitse in Kgatleng District that could benefit from ASSP financing for irrigation. In Ngwaketse West Sub-District, the Mission visited

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<sup>1</sup>Mission composition – The Mission was led by Mr Robson Mutandi, Country Director, with the participation of the following team members: Mr Mawira Chitima, Lead Technical Specialist (Water and Infrastructure); Mr Shakib Mbabaali, Project Management Consultant and Lead Writer; Ms Elizabeth Ssendiwala, Gender, Targeting, and Youth Expert; Mr Patrick Mlilo, Waste Water Irrigation and Mechanization Consultant; Mr Richard Batamanye, Fiduciary Management Consultant; and Mr Motsoasele Leballo, Agriculture Service Centers, Extension and Intuitional Capacity Building Consultant.

<sup>2</sup>The Government of Botswana was represented by: Roy Orman, ASSP Project Manager; Dipuo Koka Assistant Project Manager; Neo G. Koloi, ASSP Financial Controller; Maduo J. Kesetse, ASSP Monitoring and Evaluation Officer; Thapelo Otisitswe, ASSP Mechanisation Officer; Tebogo Modisenyane, ASSP Procurement Officer; Mokwadi Mapitse, ASSP Irrigation Officer; Tirelo Ditshipi, ASSP Information and Communications Officer.

<sup>3</sup>Hereafter, the term ‘Mission’ refers to Government of Botswana and IFAD.

Jwaneng to look at the only Agricultural Service Centres that has been completed and operational. The list of people met is presented herein as Annex 1.

5. A round-up meeting was held on 13<sup>th</sup> October 2016 with members of the PMT. The purpose of the round-up meeting was to present the Mission's observations, conclusions and recommendations to the Project.

6. A wrap-up meeting was held on 14<sup>th</sup> October 2016 in Gaborone under the chairpersonship of Dr Kekgonne E. Baipoledi, Deputy Permanent Secretary (Technical Service) and attended by representatives of the relevant government ministries and the implementing units. The meeting discussed the Mission's findings, conclusions and recommendations as contained in the draft Aide Memoire. The Aide Memoire was subsequently finalised and signed by Dr Kekgonne E. Baipoledi, Deputy Permanent Secretary (Technical Service) and Robson Mutandi, the IFAD Country Director for Botswana.

7. The IFAD Mission Team would like to express its appreciation to GoB for jointly supervising ASSP and for allowing frank and cordial exchanges. The team also thanks the PMT staff for organising logistics, hospitalities and courtesies extended, including their contributions to this Aide Memoire.

## **B. Overall Assessment of ASSP Implementation**

8. ASSP is in its final year of implementation but, as noted by previous Missions, the evolution of activity implementation has been, generally, slow. This is reflected in its cumulative disbursement rate of 19% of total IFAD grant and loan resources, as of 30<sup>th</sup> September 2016. However, taking into account: a) Withdrawal Application number 5 that was submitted at the beginning of October 2016; b) unclaimed expenditure for the period 1<sup>st</sup> April to 30<sup>th</sup> September 2016; and c) firm commitments, the cumulative expenditure would represent 51% of the total loan and grant.

9. In view of the above, it has become evident that the time lost at start-up cannot be recovered, and that the development objectives cannot be achieved by completion date at the current pace of operation and disbursement. Accordingly, the Government has expressed the desire to request for an extension of at least 12 months to allow the Project to complete outstanding contracts and activities that will ensure sustainability of Project interventions. More specifically, the 12 months extension would largely focus on completion of construction of the Palapye Wastewater Irrigation Scheme, establishing and developing capacity of the Water Users Organisation and farmers for the operation and maintenance of the irrigation system, training farmers in horticultural production and the preparation of feasibility studies for the development of additional wastewater irrigation schemes. The additional time will also allow IFAD and the Government of Botswana to develop a successor Project to ASSP. The follow-on Project will focus on scaling up successful results from ASSP on enhancing productivity for smallholder farmers in Botswana.

10. Going forward, the key generic issues/risks that would need to be closely monitored to prevent them from hampering implementation progress include:

- (a). The delay in initiating the wastewater irrigation scheme in Palapye could, potentially, affect the effective establishment and capacity building of farmers. The concept of Water User Organisations is new to the country and will require time for building capacities for government service providers and farmers. There is a risk that if the initiation is delayed any further, sustainability of the intervention could be jeopardised; and
- (b). Slow establishment of Agricultural Services Centres (ASCs) – There is only one (out of the target 15) completed and operational ASC and the rest are at different stages of development. The completion and operationalisation of the remaining 14 ASCs should be expedited as a matter of priority. The establishment and operationalisation of the Jwaneng ASC and experiences of the other ASCs that have been started but not yet completed should provide the necessary learning points for the completion of the rest of the ASCs expeditiously.

Agreed action	Responsibility	Agreed date
1. ASSP and the Project Steering Committee should prioritise activities related to the Palapye wastewater irrigation scheme.	Project Manager	December 2016
2. Expedite the development and operationalisation of the remaining 14 ASCs	Project Manager	March 2017

## C. Outputs and Outcomes

11. **Component 1: Sustainable Agricultural Production** – This component aims at achieving a sustainable increase in smallholder agricultural productivity by bridging the gap between current and potential rain-fed crop yields as well as demonstrating a viable model for the use of urban wastewater for smallholder irrigation. The component is rated as *moderately unsatisfactory*. Implementation progress made on Component 1 by the time of the Mission is summarised hereunder. Detailed implementation progress and guidance on accelerated implementation is presented in Annex 2.

12. **Subcomponent 1.1 – Agricultural Mechanisation** – Under this subcomponent, the Project has undertaken 6 out of a planned annual target of 30 (five each in six areas: Mookane, Tutume, Tsetsebjwe, Masunga, Leshibitse and Hatsalatladi) consultation meetings. In addition, one training of trainers on Conservative Agriculture (CA), two training of private machinery operators, and five training evaluations were undertaken. The training and consultation meetings are mainstreamed in the routine operations of officers in the Department of Crop Production in participating districts and extension areas. This offers a significant opportunity for sustainability.

13. **Mechanisation Strategy** – The Mission commends GoB for undertaking a national tractor, implement and machinery inventory and for developing a draft national mechanisation strategy. The results of the inventory assessment were incorporated into the mechanisation strategy. After a review of the draft strategy, it is recommended to have a clearer alignment of the strategy with the national agricultural development plans and for the strategy to cover the entire value chain. To further improve the strategy, it is recommended that the MoADFS appoints a multi-disciplinary team to finalise strategy and ensure that it is broadened to cover the entire value chain.

14. In demonstrating mechanisation options, the Mission notes the focus on demonstration of CA associated implements. The majority of farmers are yet to adopt CA and, hence, there is need to expand the range of equipment demonstrated to include, as examples, planters, weed/pest control sprayers, threshers, combine harvesters, and primary processing equipment.

15. The training of Agricultural Mechanisation Officers in MoADFS should be broadened to include attachment to equipment manufacturers/suppliers and mechanised farms in the country or at regional/international levels. In addition, standardised training materials should be developed for use across the districts.

16. **Subcomponent 1.2: Improved Rain-fed Practices** – A range of planned activities were undertaken during the first half of implementation in promoting CA. On-farm training on CA was undertaken for 730 farmers, out of a planned annual target of 5,000 farmers. It should however be noted that the agriculture season starts in November and, therefore, more demonstrations and trainings are expected to be undertaken during the October-April period. Soil testing was also undertaken for 10 farmers with CA demonstration plots, and 7 demonstrations were successfully conducted. The misinterpretation of the financing rule governing IFAD resources (refer to Section F) by PMT has also limited the extent of training and demonstrations; the misinterpretation has since been rectified.

17. The Project is implemented in all districts, sub-districts and EAs supported by ISPAAD. Whilst some CA activities were to be anchored to the proposed 15 ASCs, others were to be undertaken in EAs that are not within the operating radius of the ASCs, (generally regarded as being about 20-30 km). However, the Jwaneng ASC has a catchment area that expands to as far as 200km away.

18. Whilst there is training ongoing on CA, there is need to develop training materials and implement structured training program for interested farmers on CA practices.

18. **Subcomponent 1.3: Pilot Scheme for Wastewater Irrigation** – The performance of this subcomponent is *unsatisfactory*. The subcomponent focuses on the piloting of the development (design, construction and implementation of an innovative governance model for operation and maintenance) of a 29 ha irrigation schemes at Palapye is significantly behind schedule. After a lengthy discussion on the design and costs of the proposed scheme, a contract (value P7.5 million) for the construction of the scheme was awarded and signed on 19<sup>th</sup> August 2016, but the contractor is still to commence work.

19. The MoADFS appointed engineer, Stephenson Associates, has requested the contractor to provide required insurance documents and for government to provide the contract annexes before handing over site to the contractor. During the Mission, the contractor has since submitted the required insurance and the MoADFS was putting together a complete contractor dossier for the engineer. Handing over of the site, planned for 10 October 2016, has been postponed to the week commencing 17 October 2016. The Mission notes that the capacity of the Project to effectively manage the contracts of the engineer and the contractor needs strengthening. Hence, it is recommended that the project organises for the training of MoADFS engineers on, among others, irrigation system design, project and contract management and construction supervision skills, and water quality management. The Project should assist the MoADFS engineering unit to acquire appropriate and relevant design and planning hardware and software to facilitate the design of engineering works.

20. **Scheme Operation and Management Model** – The Mission is concerned that the scheme construction is about to begin without clarity on the governance model that will be piloted. Options for governance models were discussed with farmers and government officials during the last 12 months, but no agreement has been reached to date. The Mission recommends that the MoADFS and the selected farmers, should agree on a governance and operation model for the scheme. The model will include the formation and registration of a Water Users Organisation to manage the common scheme infrastructure, potential role of a water service provider (e.g. Water Utilities Corporation (WUC)) in scheme operation, payment of operation and maintenance charges (water charges, pumps and pipeline maintenance, electricity costs, road and fence maintenance, among others).

21. **Financing of Infield Development by Farmers** – Each farmer has been allocated a 1 ha plot for horticultural production under irrigation. The Mission notes that the Project has no clear understanding of how the farmers will finance: a) the purchase and installation of the irrigation system on the plots; and b) the procurement of crop production inputs. The Mission recommends that the Project assists the Water Users Organisation to prepare a business plan for the scheme as a whole, with a particular focus on identifying cash-flow requirements at scheme and individual farmer level. The plan will identify potential sources of funding, such as government run programmes (ISPAAD, Women's fund, Youth fund), Citizen Entrepreneurial Development Agency (CEDA) or commercial banks. The potential role for government to guarantee credit financing for farmers for the infield irrigation system will also be analysed. One option is for government to put in place a credit guarantee facility to leverage as collateral for the smallholder farmers to access finance for the infield works and inputs for production during the 1st year of operation. This approach will allow for the full development of the scheme from the onset to reduce delayed production, as is common with other irrigation schemes, such as Dikabeya and Glen Valley.

22. The Mission recognises the strides made on training the selected farmers in group dynamics, horticultural production, among others. However, it is a priority that this training be matched and be implemented hand-in-hand with an appropriate governance model. This is key, as the scheme is a pilot to be replicated at other sites.

23. **Quality of Treated Water from the Wastewater Plant** – Works to assist in the improvement of the water quality out of the Waste Water Treatment Works (WWTW) is behind schedule. The WUC is currently preparing the invitation to tender for these works.

24. **Scaling-up Horticultural Production under Water User Organisations** – The Mission recommends that the Project finances the development of feasibility and design studies for new horticultural development schemes. An initial list of potential schemes that can be studied and developed further are:

- Leshibitse Production Cluster ground water – Conduct a feasibility study for potential development of about 540 hectare production area;

- Lobatse WWTW irrigation scheme – Conduct a feasibility study for the development of about 71 ha, in possible two phases – (Phase 1: 41ha and Phase 2: 30 ha);
- Selebi Pikwe WWTW Irrigation scheme – Conduct feasibility study for the development of 160 ha horticultural production area; and
- Establishment and development of a Water Users Organisation at Dikabeya Irrigation Scheme. This will include a socio-economic study of the scheme and the main constraints affecting sustainability.

25. **Component 2: Enabling Environment for Smallholder Agriculture** – The component aims at: (a) creating a sustainable system of incentives and local institutions to support the smallholder sub-sector; (b) align the relevant institutional framework and development interventions to ensure better penetration of services to targeted beneficiaries; (c) ensuring that farmers and farmer organisations have the capacity to benefit from improved service delivery, including a range of services to be provided through the ASCs and the extension system in general, which will complement and improve the effectiveness of the ISPAAD programme. This component is rated *moderately satisfactory*. Implementation progress made on Component 2 by the time of the Mission is summarised hereunder. Detailed implementation progress and guidance on accelerated implementation is presented in Annex 3.

26. **Subcomponent 2.1: Improved Delivery of Extension Services** – This subcomponent focuses on the provision of:

- *Training of Extension Officers* – Training for 100 extension staff on Conservation Agriculture (CA), has proven useful, and they are now passing on those skills to their colleagues and farmers in their respective districts. Whilst the CA trainings have been taking place, it was decided to delay the Farmer Field Schools training, so as to consolidate and embed the CA approach amongst extension officers and farmers. The computer skills training for 25 extension staff is still ongoing, designed to assist extension officers collect and record data, prepare timely reports and to disseminate ASSP information on public platforms such as the internet, radio, television and Facebook in Botswana and internationally. The procured computer equipment is being utilised at the PMT offices and in the district offices;
- *CA Strategy* – The PMT has completed the CA Strategy (a copy will be attached as an annex to the Supervision Mission Report) for upscaling CA in all districts of Botswana; this CA Strategy is being progressed into an implementation plan; and
- *Purchase of equipment (motor vehicles) for district agricultural offices* – The PMT had planned to purchase 3 motor vehicles in the period since the last Implementation Support Mission. However, after aligning and assimilating the GoB procurement challenges, the PMT was able to purchase 4 motor vehicles; the additional vehicle was purchased from price competitive savings from the planned budget.

27. **Subcomponent 2.2: Agricultural Service Centres (ASCs)** – This subcomponent focuses on constructing and equipping ASCs and providing a full range of services farmers need to undertake farming as a business and compete effectively and profitably in a market economy. Progress made is highlighted below:

- The last Implementation Support Mission (29<sup>th</sup> November – 9<sup>th</sup> December 2015) concluded that three ASCs would be constructed and commissioned in 2016. Procurement challenges have meant that, of the three, none of them have been completed, and only one is close to commissioning. Further, the three planned centres have been hampered by challenges relating to construction, supervision and procurement; they are significantly behind schedule;
- The Botswana Agricultural Marketing Board (BAMB) is operating the ASC at Jwaneng, and this Mission confirmed that the centre is providing the services that it had been designed for. Further, the uptake from the farmers in the District and surrounding areas illustrated effective utilisation of the services offered, as witnessed by the Mission. The ASC manager provided data on use patterns and demands of the farmers in the district (the data report will be included as an annex to the Supervision Mission Report);
- The Jwaneng ASC is run well by its manager and team, coordinating their activities with the district extension officers as well as adequate support from the PMT in Gaborone. Planning has been clearly undertaken, and they are ready with technical support, machinery and agricultural

inputs for the upcoming planting season. However, this particular ASC, although staffed with nine people, they can easily double that to adequately service the farming customers on a daily basis, at the ASC and on the farm.

28. **Subcomponent 2.3: Institutional Strengthening** – A draft Institutional Strengthening Strategy has been completed and needs to be discussed by all stakeholders before being implemented. This strategy will endeavour to systematically plan and implement institutional strengthening within the ASSP, MoADFS and at district level (a copy of the Strategy will be included in the Supervision Mission Report).

Agreed action	Responsibility	Agreed date
1. Agree on a scheme operation and management governance and plot development and financing model for the pilot Palapye Irrigation Scheme.	Director CP, Project manager ASSP, farmers	December 2016
2. Finalise mechanisation strategy	Director DCP	December 2016
3. Provide all required contract documents to accepted standard, and handover site to contractor	Project Manager ASSP	October 2016
4. Organise training of MoADFS engineers	Director DCP, Project manager University of Botswana, MOADFS and ASSP	January 2017
5. Set –up water quality monitoring system for the scheme	Project Manager ASSP	March 2017
6. Award contracts for feasibility and design studies of new schemes	Project Manager ASSP	January 2017
7. Upscale Training of Trainers (ToTs) activities for CA training Plan	Project Manager	November 2016
8. Undertake stakeholder consultations for the Institutional Strengthening Strategy and expedite its implementation	Knowledge Management Officer	January 2017

## D. ASSP Implementation Progress

29. **Quality of Project Management** – This is rated as *moderately satisfactory*. The current management is making progress in coordinating and managing Project activities. However, the Management team needs Technical Support that should include exposure to similar Projects in the region.

30. **Performance of Monitoring and Evaluation (M&E)** – This is rated as *moderately satisfactory*. The M&E system has been generally weak and has not largely provided the expected services. To begin with, the Project has not succeeded in undertaking the Baseline Survey which was to be used to assess progression towards achieving the Project's targets. Preparation and timely submission of informative progress reports in another area that has not performed well; this is partly attributable to the delayed receipt of data from the participating districts. Consequently, M&E is not being widely used as a management and planning tool. Project Management sought to address the M&E issue and Technical Assistance was provided in January 2016. The purpose was to work with the PMT to design a simple system that could assist in improving Planning, Monitoring and Evaluation (PM&E) during the remainder of the Project period. The TA also sought to strengthen staff capacity in the area of PM&E. The impact of the TA is gradually beginning to manifest itself; the Project's Logical Framework is being updated and the staff are making strides towards collecting, refining and analysing of Project-specific data to ascertain progress (or lack thereof) towards achieving set targets, with regard to outcomes and impact. While the improving M&E capacity is beginning to benefit ASSP during its final year of implementation, it will even be of better use to other current and future projects in the Ministry of Agriculture.

31. **Coherence between AWPB and Implementation** – This aspect is rated as *moderately unsatisfactory*. The Project has generally experienced problems adhering to the AWPB, particularly in terms of timeliness on implementing planned activities. The single, most important limiting factor is the protracted procurement process which results in the delayed provision of the requisite goods and/or services to the implementing agencies. Consequently, many of the planned activities get rolled over to the following AWPB. This has consistently contributed to the unsatisfactory performance with regard to AWPB utilisation.

**32. Gender Focus** – This is rated *moderately satisfactory*. At design, gender and youth responsive targeting mechanism had been developed for each subcomponent. This was further strengthened by a Gender and Youth Study that was undertaken as part of the start-up activities. The Mission was however informed that at implementation, attention to gender and youth in ASSP has been more by default than deliberate effort as guided by these two documents. In the selection of beneficiaries for the Palapye Waste Water irrigation pilot scheme, quotas for women and youth were achieved: 24 small holder farmers were selected with 30% representing various groups – youth, women and disadvantaged groups.

**33.** However, access to finance may be a challenge for some women and youth (as in other irrigation schemes visited by the Mission team, such as Dikabeya Dam) with regard to funding the purchase and installation of the infield irrigation system and production costs.

**34.** In an effort to support the youth, ASSP has written to the Ministry of Youth Empowerment, Sport and Culture Development requesting for prioritization of proposals from young women and men with plots in the Palapye irrigation scheme. It was agreed that ASSP would work closely with the Youth Focal Person at the Ministry of Agricultural Development and Food Security in supporting youth empowerment in ASSP including information and guidance on accessing available support mechanisms. The M & E officer has informally been undertaking the role of Gender Focal Person at ASSP. It is suggested that this role is formalized. Generic ToRs for this role will be elaborated in the detailed Mission report. Part of the responsibilities will include initiating sensitization and trainings on gender and youth as foreseen at design.

**35.** Under subcomponent 1.1, the Mission observed that the draft mechanization strategy is gender neutral and recommends that gender and youth considerations relating to mechanization of agriculture are addressed in the strategy. Additional information on gender and youth is presented in Annex 4.

**36. Poverty focus** – This aspect is rated as *moderately satisfactory*. The selection criteria availed to the Mission did not highlight poverty related criterion. However, the limitation in the support provided initiatives a self-targeting mechanism where the better-off may not be interested – for example in applying for 1 hectare of land.

**37. Effectiveness of Targeting Approach** – This aspect is also rated as *moderately satisfactory*. ASSP targets to benefit approximately 20,000 farming households. So far 10,213 farmers have been identified in sub-component 1.2 (improved rain-fed practices). The beneficiary selection criteria shared with the mission was silent on gender and youth inclusion – but these categories were achieved by default. In the Palapye waste water irrigation project, 35 beneficiaries were selected in 2014; (9 youth, 13 females and 13 males). The Farmers have been organized into an association, *Palapye Farmers Link*, whose registration process is on-going. During interactions with the mission, the farmers appreciated various trainings that have been provided but expressed concern over the delay of the project implementation. They are however using the plots to produce rain-fed crops as they wait for the irrigation scheme to transition to horticulture farming. In the last season, they produced 26 bags of cow peas in 7.5 hectares of land.

**38.** The project has trained 1,163 farmers in various fields (mainly conservation agriculture and mechanization). Of these, 484 are men; 461 women, 112 young men, and 67 young women. While sex and age disaggregated data on participation in training has been regularly tracked, analysis and impact of the training is also needed in order to understand the level of appropriateness and adaption of new skills and practices. Conservation agriculture initiatives, for example, should be gender responsive particularly in reducing the labour burden and drudgery for women and cater for the majority of users of the technology who are women. Additional information is presented in Annex 4.

**39. Innovation and Learning** – This is rated as *moderately satisfactory*. The design of the Project includes a few innovative features such as: a) recycling of treated wastewater for irrigation purposes. For a semi-arid country like Botswana, this technique could generate many lessons for other semi-arid countries, especially in southern Africa; b) systematic linkage of smallholder farmers with the private sector for supply of farm machinery services; and c) productivity enhancement of rain-fed agriculture through a combination of low-cost farming methods and yield enhancing technologies. In this regard, ASSP has triggered some learning experiences in the field of CA and Botswana's other development partners are using some of that experience to promote CA in different parts of the country. However,

implementation delays are making it difficult to pilot these features, generate and disseminate lessons of experience for the purpose of replicating successful pilots.

40. **Climate and Environmental Focus** – The aspect is rated as *moderately satisfactory*. The Project concept is rooted in promoting conservation agriculture and promoting wastewater reuse in an arid country. The effort the programme has put in the development of water conservation for agriculture for both rain-fed and irrigated crop production is innovative in the country. Ensuring better land management and improved water use has increased environmental benefits to the community. Climate and environmental practices being promoted and adopted, albeit slowly, by the farmers focus on more efficient and resilient production system.

41. The Mission noted that the Environmental Impact Assessment (EIA) for the pilot irrigation scheme had not yet been cleared by the Department of Environment Affairs. It was also not clear if irrigation schemes visited, Serowe and Mahalapye, had undertaken environmental impact assessments.

42. The initiated policy dialogue on water user organisations will encourage the promotion of self-organising resource management organisations that facilitate the conservation and efficient of all natural resources in the country.

43. There is an opportunity for the demonstration of long and short term benefits for building green agricultural service centres through the inclusion of solar electricity and water harvesting facilities in the design of the buildings. It is recommended that the completed agricultural service centres are retrofitted with solar electricity and water harvesting facilities.

44. The programme should organise environment and climate related training for both farmers and extension staff of the MoADFS. This will increase awareness of the importance of undertaking environmental impact assessments for proposed interventions. The training will enhance the understanding of the implications to the environmental and climate of crop and animal production practices.

Agreed action	Responsibility	Agreed date
1. Organise environment and climate related training for staff and farmers.	Project manager ASSP	November 2016

## E. Fiduciary aspects

45. **Financial Management** – The Project is in its fifth and final year of implementation. Accordingly financial management assessment has focused on key elements that have implication to smooth Project completion and closure. The overall assessment of financial management is *moderately satisfactory*. The MoADFS headquarters is the ASSP accounting hub. The ASSP finance team is mainstreamed into government systems with the assigned Project Accountant sitting at the Accounts Department of the Ministry. The Project has, since inception, operated on the Government's Accounting and Budgeting System (GABS), an ORACLE-based accounting software for its accounting needs.

46. The Mission noted that ASSP has experienced accounting challenges some of which arising from the above setup. The challenges include: a) Project reports are manually generated in MS excel as the GoB chart of accounts cannot support reporting of expenditure by component, category and financier; b) the misinterpretation of Schedule 2 and the PDR has led to distortion in reporting of Project expenditure; c) commitments generated by the supplies unit and posted into the system have mixed up IFAD and GoB funded activities leading to under reporting on IFAD funding expenditure. Discussions have been held with the Project management team on schedule 2 of the financing agreement to clarify misinterpretation of the same. **Agreed actions: a) Eligible expenditure for field travel and other costs in respect of specific IFAD funded activities should be charged to specific activities in line with Schedule 2 of the Financing Agreement. Statements of Expenditure (SOEs) for eligible expenditure, previously misallocated, will be compiled, together with their respective support documents and included in the subsequent withdrawal application; and b) Project Accountant, in consultation with the Procurement Officer, will**

**review Project commitments prior to posting transactions into GABS to ensure proper allocation of expenditure to financiers.**

47. **Disbursement** – As at 30<sup>th</sup> September 2016, the IFAD loan was SDR 418,954.82 disbursed, representing 16% of SDR 2,600,000 allocated while the grant was SDR 283,214.50, representing 28% of SDR 1,025,000 allocated at appraisal. The cumulative IFAD Loan and Grant was 19% disbursed (SDR 702,116.32 of SDR 3,625,000 allocated), including the initial deposit, leaving a balance of SDR 2,922,833.68 (equivalent to USD 4,056,863.92) to be accessed by the Project from IFAD. Considering: a) withdrawal application number 5 of USD 307,412.00 that was submitted at the beginning of October 2016; b) unclaimed expenditure for the period 1<sup>st</sup> April to 30<sup>th</sup> September 2016 of USD 63,148.66; and c) commitments amounting to USD 1,241,641.15; these together lead to a cumulative expenditure of USD 2,650,298.66 or SDR 1,863,712.85, representing 51% of the total loan and grant as show in the table below.

**Table 1. Projected Disbursements with Full Realisation of Commitments (SDR)**

Category	Revised Allocation	Disbursement	WA 5 Pending	Commitments	Balance	Percentage with commitments
1	420,000	34,806	105,119	-	280,075	33%
2	1,035,000	16,793	-	901,486	116,721	89%
3 (a)	530,000	112,383	19,485	16,431	381,701	28%
3 (b)	365,000	117,647	84,709	-	162,644	55%
4	1,200,000	25,828	14,190	9,709	1,150,273	21%
	75,000	-	-	-	75,000	0%
	-	380,154	-	-	(380,154)	-
	-	14,554	-	-	(14,554)	-
<b>Total</b>	<b>3,625,000</b>	<b>702,166</b>	<b>223,503</b>	<b>927,626</b>	<b>1,771,706</b>	<b>51%</b>

48. This will leave a balance of USD 2,444,653.11 available to be spent/committed by the Project completion date. Whereas disbursements are projected to improve, at the current rate of activity implementation the project will not be able to absorb the balance of the loan and grant funds in the remaining implementation period to 31<sup>st</sup> March 2016. This rate of disbursement compared with a project of the same disbursement profile is considered *unsatisfactory*.

49. The turnover of withdrawal applications has been very slow attributed to the slow start of activity implementation in the first three years, high staff turnover, poor designs and a general misunderstanding of the Project. Historical disbursement from IFAD has been as follows: 2012/13 USD 697,029.38; 2013/14 nil; 2014/15 USD nil; 2015/16 USD 223,163.00; and the first half of 2016/17 to 30/09/2016 USD 117,905.00. The last withdrawal application submitted at the beginning of October 2016 was in respect of expenditure for the fiscal year ended 31<sup>st</sup> March 2016. The six months expenditure for the period 1<sup>st</sup> April to 30<sup>th</sup> September 2016 has not been claimed yet. As implementation has begun to pick momentum and in view of the value of commitments and planned activities, liquidity may become a problem to the Project. **Agreed action: Withdrawal applications should not be held by the project until end of financial year. SOEs should be compiled and withdrawal applications submitted once eligible expenditure reaches 20% of the initial deposit.**

50. **Designated Account** – The loan and grant USD Designated Accounts were never opened as the funds are held in one pooled Government USD general Remittance Account. Funds are traced through ledger accounts under the Ministry of Finance created separately for the loan and grant. The operating account does not exist either; instead MoADFS operating ledger accounts for the loan and grant are used. The charge to the designated account ledgers is done at the end of the year after reconciliations have been done. It is during the reconciliation exercise that accounts that were wrongly charged are reversed and the proper accounts are charged. The annual reconciliation exercise partially contributes to delays in finalization of financial statements for audit and delays in claiming funds from the loan and grant in respect of previously mis-posted transactions. **Agreed action: MoADFS operating ledgers shall be reconciled on a quarterly basis by the ASSP Financial**

**Controller and the Procurement Officer to identify wrongly committed/charged accounts to facilitate timely charging of the designated account ledgers and early preparation of financial statements.**

51. **Recovery Plan** – The recovery of the initial deposit should be initiated six months to Project completion which, in this case, was 1<sup>st</sup> October 2016. The Mission has provided guidance on the preparation of the recovery plan. However, implementation of the plan will be determined when a decision is made on the Project extension request by GoB.

52. **Budget Utilisation** – During the fiscal year 2015/16, ASSP utilised about BWP 9.61 million of the approved budget of BWP 54.40 million, representing 18%. This utilisation rate of the annual budget is considered to be unsatisfactory. In the first half of 2016/17, ASSP has utilised BWP 4.87 million out of the approved budget of BWP 43.77 million, representing 11% of the approved budget. Whereas this is expected to improve in the second half of the year, it is still unsatisfactory performance. ASSP will need to scale up implementation during the second half of the year in order to achieve a satisfactory budget performance.

**Table 2. Budget Utilisation for 2015/16 and 2016/17 (000' BWP)**

Category Description	2015/16			2016/17		
	Budget	Actual	%	Budget	Actual	%
Vehicles, equipment and materials	3,361	2,472	74%	1,110	-	0%
Civil works for irrigation pilot schemes	13,900	-	0%	11,601	2,024	17%
Technical support – on farm research studies for pilot scheme for smallholder waste water irrigation	307	258	84%	317	29	9%
Technical support – on farm research studies for pilot scheme for smallholder waste water irrigation	2,175	894	41%	1,526	309	20%
Improved Extension outreach	2,323	-	0%	5,369	125	2%
Taxes and other recurrent costs	32,390	5,769	18%	23,847	2,383	10%
<b>Total</b>	<b>54,455</b>	<b>9,610</b>	<b>18%</b>	<b>43,770</b>	<b>4,870</b>	<b>11%</b>

53. **Statements of Expenditure (SOEs)** – The Mission undertook a review of SOEs supporting Withdrawal Application (WA) 4 which was replenished and WA 5 submitted for replenishment. The review revealed that claimed expenditure was eligible and filing of SOE support documents had improved. However, the Mission noted that completion of SOE forms needed improvement with respect to posting of figures in appropriate columns. It was also noted that extension publicity materials and materials for use in workshops with a value of USD 12,716.90, under WA 4, and USD 23,894.51, under WA 5, were wrongly charged to Category 1. This resulted into an understatement of eligible expenditure under the two WAs by USD 30,379.20, since only 17% of the cost was claimed under Category 1. **Agreed action: SOEs for all unclaimed eligible expenditures, together with the related support documents, will be compiled and included in the next replenishment Withdrawal Application.**

54. **Counterpart Funds** – GoB counterpart contribution to Project costs has been rated *highly satisfactory*. GoB was allocated USD 19.08 million at appraisal as counterpart contribution, representing 76% of total Project cost. Cumulatively, since Project inception, government has contributed a total of USD 4.85 million as counterpart; representing 25% of the appraisal target. This is 84% of total cumulative Project expenditure to date of USD 5.89 million. It has been explained that GoB recognizes the importance of this Project in contributing to its objective of ensuring food security. Thus, in pursuance of this objective, GoB has made budgetary provisions for the next five years to continue with the Project activities. It is in this regard that as the Project re-focuses and prioritizes its activities, GoB has prepared a request for extension that is undergoing internal approval processes prior to submission to IFAD for consideration. **Agreed action: In view of the little time left to Project completion, it has been agreed that the internal approval processes of the request for extension be fast tracked to facilitate urgent submission to IFAD, not later than 31<sup>st</sup> October 2016.**

55. At appraisal, beneficiary contribution of USD 290,000 for farmers' infield investments, under the pilot scheme for smallholder wastewater irrigation, was anticipated. Owing to delays in implementation of the scheme, this contribution has not been realized. However, it is expected to be realised when the civil work on the scheme has been completed.

56. **Compliance with loan covenants.** The Project is generally being implemented in compliance with the financing agreement except for the timely submission of audit reports, missing opinions on the certified statements of expenditure in the audit reports and the incomplete Project Implementation Manual (PIM). This has been rated as *moderately satisfactory*.

57. **Procurement.** ASSP procurement has experienced challenges in the past, characterised by lengthy, inconclusive tender processes and time overruns. As a consequence, many Project activities have not been implemented on schedule and are overdue. Accordingly, the rating in this aspect of Project management is *moderately satisfactory*. Whereas the enhanced Project management team is making efforts to scale up implementation, the time left to Project completion is insufficient to significantly improve on Project performance. Entering into new commitments will require swift action by Project management as the procurement process will normally take between 90 days to 150 days. Thus, procurement processes being initiated in the month of October 2016 will be concluded with commitments made, at the earliest, in January 2017. **Agreed action: All procurement activities planned during the year 2016/17 and have been assessed and agreed as feasible for implementation prior to Project completion should have been published by 31<sup>st</sup> October 2016.**

58. Further, the Mission analysed the Procurement Plan together with the related AWPB for the fiscal year 2016/17 and noted that some items supplementary to the planned activities have not been included in both the AWPB and the procurement plan. Detailed discussions have been held in respect of the same during which these items were identified. **Agreed action: Revise the AWPB to include all additional activities, previously not planed but have become relevant; reflect the same in the Procurement Plan. Submit the revised AWPB and Procurement Plan to IFAD for review and expression of a No Objection.**

59. **Contract Management** – The Project has not maintained a contract register and contract monitoring forms (CMFs) for contracts entered into since inception. The quality of contract management, including completeness and signing of contract documents (such as Intention-To-Tender (ITT) documents (which constitute contract documents) will require improvement. In particular, the main contract and the related attachments should be reconciled and cross-referenced to and ensure consistence. The Mission provided support to the Project Management Team in developing a contract register and related contract monitoring forms. Support has also been provided in the area of contract development and management. **Agreed action: TheProcurement Officer will regularly update the contract register and the related CMFs and all shortcomings in contract documentation as discussed will be addressed by the Project.**

60. **Audit.** Compliance with audit requirements is rated *moderately satisfactory*. The financial statements for the year 2015/16 prepared in accordance with IPSAS cash basis were audited by the Auditor-General in accordance with International Standards on Auditing. The opinion on financial statements was unqualified. No opinion was provided on the Designated Account as the IFAD funding is pooled in the Government's USD general Remittance Account and reported through ledgers. No opinion was provided on the Statements of Expenditures. The report was subsequently submitted o 14 October, 2016 two weeks later than the due date which constitutes non-compliance to loan covenants. **Agreed action: Subsequent audit reports to include an audit opinion on the Certified Statements of Expenditure as required by IFAD audit guidelines.**

<b>Agreed action</b>	<b>Responsibility</b>	<b>Agreed date</b>
1. Compile SOEs and related support documents for eligible expenditure previously not claimed and include it in the next WA.	Financial Controller	31 <sup>st</sup> October 2016
2. Reconcile Project commitments and expenditure on a quarterly basis.	Financial Controller and Procurement Officer	ongoing
3. Prepare and submit a WA to IFAD once expenditures reach 20% of the initial deposit.	Financial Controller	ongoing
4. Fast-track completion of approvals and submission to IFAD of a request for Project extension.	Director, Crop Production	31 <sup>st</sup> October 2016
5. Revise the AWPB and Procurement plan and submit them to IFAD for No Objection.	Project Manager	31 <sup>st</sup> October 2016
6. Compile a contract register and contract monitoring forms for all contracts entered into and update them regularly.	Procurement Officer	ongoing

## F. Sustainability

61. **Institutional Sustainability** – This is rated *moderately satisfactory*. Deliberate activities are being undertaken to strengthen the capacity of the participating government and target beneficiary organisations. This is meant to ensure continued provision of services post-Project.
62. **Empowerment** – This is rated *moderately satisfactory*. Target beneficiaries are being provided with the required capacity, both technical and governance to strengthen their organisations.
63. **Beneficiary Participation** – This is rated as *moderately satisfactory*. The target beneficiaries have shown enthusiasm and are actively participating in the different interventions; participation, thus far, has been generally gender equitable. However, access to finance could present problems to some beneficiaries in the smallholder irrigation scheme.
64. **Service Providers** – This is rated as *moderately satisfactory*. Service provision is generally fine but the quality and timeliness of reports could be improved.
65. **Exit/Sustainability Strategy** – This is rated *satisfactory*. An exit/sustainability strategy has been developed and institutional arrangements together with post-Project funding are covered. A detailed exit strategy is attached herewith as an Annex 5.
66. **Scaling up and Replication** – This is rated *moderately satisfactory*. There are three key potential areas for scaling up successful Project interventions: a) ASCs; b) Conservation Agriculture; and c) Waste Water Irrigation for smallholders. Government has shown considerable interest in these areas.

## G. Conclusion

67. Overall Project implementation has not progressed well and, in many cases, it is unlikely that it will achieve its objectives by the completion date of 31<sup>st</sup> March 2017. This is attributable to the fact that the Project underwent a slow start and a considerable amount of effective activity implementation time was lost. However, considerable progress has been made in addressing many of the inherent constraining factors. Accordingly, the Government is asking for an extension of at least 12 months for the Project to reach its target outreach and achieve the major outputs and outcomes. The additional time will also allow IFAD and GoB to develop a successor Project to ASSP. The follow-on Project will focus on scaling up successful results from ASSP on enhancing productivity for smallholder farmers in Botswana. The Mission supports government's request for a one year extension.

## Appendix 1: Summary of Project Status and Ratings

### A. Basic Facts

Country	Botswana		Project ID	1546 [1100001546]	Loan/DSF/Grant/ASAP FI No.	1000003905 , 1000003906
Project	Agricultural Services Support Project (ASSP)				Top-up Grant	Loan/DSF
Date of Update	20-Oct-2016					
Supervising Inst.	IFAD/IFAD					
No. of Supervisions	3	No. of Implementations	12			
Last Supervision	15-Oct-2016	Last Implementation Support/Follow-up mission	8-Apr-2016			
					USD million	Disb. rate %
Approval	05-Dec-2010				Total financing	25.02
Agreement	21-Feb-2012		Effectiveness lag	14.8	IFAD Total	5.65
Entry into force	21-Feb-2012		PAR value	-----	IFAD loan	4.04
First disbursement	04-May-2012				DSF grant	
MTR	28-May-2014		Last amendment	-----	IFAD grant	1.61
Original completion	31-Mar-2017		Last audit	25-Oct-2016	Domestic Total	19.37
Current completion	31-Mar-2017				Beneficiaries	0.29
Original closing	30-Sep-2017				Government (National)	19.08
Current closing	30-Sep-2017				External Co-financing Total	
No. of extensions	0					

### B. Project Performance Ratings

		Last	Current			Last	Current
B.1 Fiduciary Aspects		t	t	B.2 Project implementation progress		t	t
1. Quality of financial management		4	4	1. Quality of project management		3	4
2. Acceptable disbursement rate		2	2	2. Performance of M&E		3	4
3. Counterpart funds		5	6	3. Coherence between AWPB & implementation		3	3
4. Compliance with financing covenants		3	4	4. Gender focus		3	4
5. Compliance with procurement		4	4	5. Poverty focus		3	4
6. Quality and timeliness of audits		4	4	6. Effectiveness of targeting approach		3	4
				7. Innovation and learning		3	4
				8. Climate and environment focus		4	4
B.3 Outputs and outcomes		Last	Current	B.4 Sustainability		Last	Current
1. Sustainable Agricultural Production		3	3	1. Institution building (organizations, etc.)		3	4
2. Enabling Environment for Smallholder Agriculture		3	4	2. Empowerment		3	4
				3. Quality of beneficiary participation		4	4
				4. Responsiveness of service providers		4	4
				5. Exit strategy (readiness and quality)		3	5
				6. Potential for scaling up and replication		4	4

### B.5 Justification of ratings

**B1:1.** Rating unchanged but the inability of the ORACLE-based accounting software to generate reports means that reports are manually generated in MS excel; **2.** Disbursement of the IFAD loan and grant continues to be low due to the delayed implementation of IFAD-funded activities; **3.** All funds required under AWPBs are always budgeted for during the fiscal year and released when needed; **4.** Project compliant with key legal covenants; **5.** Moderate challenges, characterised by lengthy, inconclusive tender processes and time overruns; **6.** Audit reports submitted within 90 days of due date but of good quality.

**B2:** 1. Proactive management to implementation issues but management team needs Technical Support that should include exposure to similar Projects in the region; 2. M&E system had some shortcomings but due to Technical Assistance, staff have started to collect, refine and analyse data to ascertain progress (or lack thereof) towards achieving set targets; 3. Project operating within budget but some problems in adhering to the AWPB timeliness; 4-6 ASSP doing well in reaching out and addressing target beneficiaries' needs using specified targeting mechanisms; 7. Project innovations are adaptations and some learning experiences have been generated, especially in the field of Conservation Agriculture; 8. ASSP concept is rooted in promoting conservation agriculture and promoting wastewater reuse in an arid country.

**B3:** 1. Implementation of the component is below target. 2. Implementation of the component is mostly on target and most of the main outputs and outcomes are expected to be achieved.

**B4:** 1-3. Prospects for sustainability look good. Capacity building provided is strengthening institutions, empowering stakeholders to gainfully participate in economic relationships. Beneficiaries are ably participating in Project activities through farmer groups 4. Service Providers are largely government agencies. Reports produced are generally submitted a bit late and quality of the content could be improved. 5. Exit strategy in place and institutional arrangements together with post-Project funding are covered; 6. Government has shown considerable interest in selected Project initiatives.

### C. Overall Assessment and Risk Profile

		Last	Current
C.1	Physical/financial assets	3	4
C.2	Food security	2	3
C.3	Quality of natural asset improvement and climate resilience	4	5
C.4	Overall <b>implementation progress</b> (Sections B1 and B2)	3	4
<b>Rationale for implementation progress rating</b>			
Overall implementation progress is moderately satisfactory; most of the target outputs are expected to be achieved and the likelihood will be enhanced further once the Palapye wastewater irrigation scheme and the remaining Agricultural Service Centres get completed. The Project is making progress towards achieving the targets despite a slow start. Through the Project, beneficiaries are gradually building their capacity variously and this will contribute to productivity enhancement of many of their enterprises. This will enable many of them to produce not only for own consumption but also a surplus for the market. It is worth noting that there is a readily available market for the beneficiaries' produce.			
C.5	Likelihood of achieving the development objectives (section B3 and B4)	4	4
<b>Rationale for development objectives rating</b>			
At the current rate of Project execution, the Project is likely to partially achieve objectives at completion due to the slow start of activity implementation. However, many of the factors responsible for the slow start are largely being addressed and the Project would benefit from an extension of at least 12 months so that most of the target outcomes can be realised.			
C.6	<b>Risks</b> Short description of major risks for each section and their impact on achievement of development objectives and sustainability		
	Fiduciary aspects	Delays related to the procurement function, thus far in ASSP implementation, have tended to lead to delays in activity implementation. To that end, some activities continue to be behind schedule as a result. The Project is trying to catch up on lost time but there is the possibility that this could lead to non-fulfilment of some of the Project objectives.	
	Project implementation progress	The slow start-up in activity implementation is potentially risky in that ASSP may not complete implementation of all activities given that it has less than 6 months of implementation time remaining. There is need to do everything possible to avoid any more time slippage.	
	Outputs and outcomes	Two major risks: a) the delay in initiating the wastewater irrigation scheme in Palapye could, potentially, affect the effective establishment and capacity building of farmers. The concept of Water User Organisations is new to the country and will require time for building capacities for government service providers and farmers. There is a risk that if the initiation is delayed any further, sustainability of the intervention could be jeopardised; and b) There is only one (out of the target 15) completed and operational Agricultural Services Centre (ASC) and the rest are at different stages of development. The establishment and operationalisation of ASCs is one of the major outputs of the Project. It is supposed to provide lessons and experience for eventual replication by the Government in other parts of the country.	
	Sustainability	The Project has just completed the establishment of the exit strategy and is in the process of initiating its implementation. The success (or lack thereof) of the process will depend on the continued commitment, motivation and availability of the responsible district staff. The risk of the staff being unavailable or being assigned other responsibilities may jeopardise sustainability of the different interventions.	

### D. Proposed Follow-up

Issue / Problem	Recommended Action	Timing	Status
Palapye Wastewater Irrigation Scheme	ASSP and the Project Steering Committee should prioritise activities related to the Palapye wastewater irrigation scheme	December 2016	Handing over of the site to the contractor was supposed to be done by mid-October 2016.

Agricultural Services Centre	Expedite the development and operationalisation of the remaining 14 ASCs	March 2017	The remaining 14 ASCs are at different stages of development.
ASSP Implementation Period Extension	Prepare and submit a request for a one-year extension	November 2016	Director of Crop Production has initiated the process of requesting for the implementation extension.

## Appendix 2: Updated Logical Framework: Progress against Objectives, Outcomes and Outputs

Narrative Summary	Verifiable Indicators (disaggregated by sex and capturing youths where possible)	Means of Verification	Assumptions/Risks (as per design report)
<b>Project Goal</b>			
To contribute to economic diversification, reduction of rural poverty and food insecurity, and improved livelihoods of rural communities	<ol style="list-style-type: none"> <li>1. Reduction in prevalence of child malnutrition (%).</li> <li>2. Increase in social and productive assets of rural. households (household asset index) (%).</li> <li>3. Households for which food security has improved (%).</li> </ol>	RIMS quantitative baseline survey in year 2, impact survey at completion in year 5. Complemented by qualitative analysis / household case studies.	
<b>Development Objective</b>			
Achieve a viable and sustainable smallholder agricultural sector based on farming as a business, and not reliant on subsidies or welfare measures.	<ol style="list-style-type: none"> <li>1. Increase (in real terms) of average household income from crops sold (%).</li> <li>4. Average value (in real terms) of subsidized inputs received by target group farmers (BWP).</li> <li>5. Proportion of irrigation farmers who have paid their dues/contributions (%).</li> </ol>	Indicator 1 & 2: additional questions added to quantitative RIMS baseline and impact survey. Annual survey (smaller sample) of benefitting farmers in year 4 and possibly also in year 3. Complemented by qualitative analysis / household case studies. Indicator 3: irrigation scheme records. Complemented by detailed study on pilot scheme covering crops grown, areas, production, sales, costs, health issues.	Significant number of rural youth take advantage of opportunity to take up farming as a business. Government creates a conducive policy environment for agricultural development Farmers adopting new technologies.
<b>Project Outcomes</b>			
<b>Outcome 1.</b> Sustainable increase in smallholder agricultural productivity.	<ol style="list-style-type: none"> <li>1. Average yield for rainfed crops (maize, sorghum, millet) among target households (kg/ha).</li> <li>6. Proportion of target households reporting yield increase for rainfed crops (%).</li> <li>7. 3. Total area cropped and harvested in the irrigation scheme (ha).</li> </ol>	Indicator 1 & 2: additional questions added to quantitative RIMS baseline and impact survey. Annual survey (smaller sample) of benefitting farmers in year 4 and possibly also in year 3. Complemented by qualitative analysis / case studies. Indicator 3: irrigation scheme records (note: can exceed scheme area due to double cropping).	Absence of prolonged (multi- year) drought periods in next 10 years.

Narrative Summary	Verifiable Indicators (disaggregated by sex and capturing youths where possible)	Means of Verification	Assumptions/Risks (as per design report)
<b>Outcome 2.</b> Favorable enabling environment for smallholder agricultural development.	<ol style="list-style-type: none"> <li>1. Proportion of target group farmers adopting technologies recommended by the project (%).</li> <li>2. Proportion of farmers using hired mechanized services (%).</li> <li>3. Cropped area covered using mechanized services (ha).</li> <li>4. Cropped area under Conservation Agriculture (ha).</li> <li>5. Farmers using ASC-based services (person).</li> <li>6. Proportion of rainfed farmers satisfied with available agricultural services (%).</li> <li>7. Proportion of irrigation farmers satisfied with available services (%).</li> </ol>	<p>Indicator 1 &amp; 5: additional questions added to quantitative RIMS baseline and impact survey. Annual survey (smaller sample) of benefitting farmers in year 4 and possibly also in year 3.</p> <p>Indicator 2 &amp; 3: records kept by machinery operators trained under the project.</p> <p>Indicator 4: ASC management to work with ASC-based enterprises to record total numbers of clients.</p> <p>All complemented by qualitative analysis / case studies. Indicator 6: included in detailed study on pilot irrigation scheme (see above).</p>	GOB adopts more efficient, cost-effective support system following project reform of incentive structures for smallholder agriculture.
<b>Project Outputs</b>			
<b>Component 1. Sustainable Agricultural Production</b>			
<b>Output 1.1</b> Efficient agricultural mechanisation services available to smallholder farmers.	<ol style="list-style-type: none"> <li>1. Government-owned tractors/implements sold or leased to private machinery contractors (number)</li> <li>2. Private machinery contractors trained (person)</li> <li>3. Private machinery contractors provided with Business Development Services (person)</li> <li>4. Private machinery operators accredited (person)</li> <li>5. Demonstrations with improved mechanized agricultural equipment (number)</li> <li>6. Demonstrations with improved animal-drawn agricultural implements (number)</li> <li>7. Mechanization officers trained on agricultural equipment and farm operations (person)</li> <li>8. Private contractors trained on agricultural equipment and farm operations (person)</li> </ol>	Whoever carries out/organizes an activity (sale/lease of machinery, training, registering accredited operators, demonstration) fills a form with key data on the results, to be entered in the appropriate monitoring register.	Entrepreneurs take advantage of opportunity to be trained and invest in tractor mechanization as a business. GOB follows through with the decision to privatize agricultural mechanization services.
<b>Output 1.2</b> Improved rainfed agricultural practices adapted, tested and demonstrated.	<ol style="list-style-type: none"> <li>9. Adaptive research trial sites established (number).</li> <li>10. Adaptive research trials conducted (number).</li> <li>11. Adaptive research reports produced (number).</li> <li>12. SMSs, ADs and lead farmers trained in improved crop production technologies (person).</li> <li>13. Demonstration plots established in the project area (number).</li> <li>14. Crop demonstrations conducted at demonstration sites (number).</li> <li>15. Farmers exposed to improved crop production methods at demonstration plots (person).</li> <li>16. Farmers trained in conservation agriculture (person).</li> </ol>	Whoever carries out/organizes an activity (establish trial site, conduct trial, conduct training, establish demonstration plot, carry out demonstration) fills a form with key data on the results, to be entered in the appropriate monitoring register.	GOB introduces a policy framework which provides incentives to adopt improved agricultural techniques.

Narrative Summary	Verifiable Indicators (disaggregated by sex and capturing youths where possible)	Means of Verification	Assumptions/Risks (as per design report)
<b>Output 1.3</b> Pilot scheme for smallholder wastewater irrigation established	<ol style="list-style-type: none"> <li>1. Smallholder farmers to whom land in the pilot scheme has been allocated (person).</li> <li>2. Developed irrigable area in the irrigation scheme (ha).</li> <li>3. People trained in irrigation scheme management (person).</li> <li>4. Farmers trained in irrigated crop production (person).</li> <li>5. Farmers trained post-harvest handling / marketing of irrigated crops (person).</li> </ol>	Key data on membership will be kept by the scheme committee, on developed area by the irrigation officer. Whoever carries out/organizes an activity (training) fills a form with key data on the results, to be entered in the appropriate monitoring register.	Smallholder farmers able to access sufficient finance to develop irrigation plots. Irrigated plots are allocated to genuine smallholder farmers.
<b>Component 2. Enabling Environment for Smallholder Agriculture</b>			
<b>Output 2.1</b> Capacity to deliver extension services improved	<ol style="list-style-type: none"> <li>1. SMSs and ADs trained in extension methodologies (person).</li> <li>6. Additional ADs recruited and mobile (person).</li> <li>7. Ratio of farmers per extension worker reduced (farmer/AD).</li> <li>8. Agro-dealers trained (person).</li> <li>9. Village-based agents trained (person).</li> </ol>	Whoever carries out/organizes an activity (training) fills a form with key data on the results, to be entered in the appropriate monitoring register. ADs submit data on clients for indicator 3.	Sufficient qualified and committed extension workers recruited.
<b>Output 2.2</b> Agricultural Service Centres constructed and equipped to provide stakeholder identified services	<ol style="list-style-type: none"> <li>1. ASCs established (number).</li> <li>10. Cluster management committees established/supported (number).</li> <li>11. Enterprises servicing smallholder farmers operating from ASCs (number).</li> </ol>	ASC established means physical construction completed and management committee in place. ADs fill/update form for groups/associations/committees. M&E focal point reports on ASC-based enterprises.	GOB maintains a policy framework that provides effective incentives to entrepreneurs to invest in agricultural service provision. Farmers sufficiently participate in farmer clusters/organizations.
<b>Output 2.3</b> Core agricultural institutional framework re-focused, and strengthened	<ol style="list-style-type: none"> <li>1. Changes made to ISPAAD operations/services as a result of the ASSP-supported comprehensive review (number).</li> <li>12. Farmers benefitting from new land allocations (person).</li> </ol>	Data from Land Boards the project works with.	Macro-economic policy framework remains receptive to concept of reducing subsidies to farmers.
<b>Component 3. Project Management</b>			
<b>Output 3.1</b> Effective project administration and coordination	<ol style="list-style-type: none"> <li>1. Key consultative stakeholder workshops held (number).</li> <li>2. Study and survey reports produced (number).</li> <li>3. Project expenditure compared to budgets (BWP).</li> <li>4. AWPBs, progress and audit reports submitted on time (number).</li> </ol>	PMT records and project accounts.	

### Appendix 3: Summary of Key Actions to be taken Within Agreed Timeframes

Action Area	Action Agreed	Date	Whom	Progress
Project Implementation	1. ASSP and the Project Steering Committee should prioritise activities related to the Palapye waste water irrigation scheme.	December 2016	Project Manager	
	2. Expedite the development and operationalisation of the remaining 14 ASCs	March 2017	Project Manager	
Outputs	3. Agree on a scheme operation and management governance and plot development and financing model for the pilot Palapye Irrigation Scheme.	December 2016	Director CP, Project manager ASSP, farmers	
	4. Finalise mechanisation strategy	December 2016	Director DCP	
	5. Provide all required contract documents to accepted standard, and handover site to contractor	October 2016	Project Manager ASSP	
	6. Organise training of MoADFS engineers	January 2017	Director DCP, Project manager	
	7. Set –up water quality monitoring system for the scheme	March 2017	University of Botswana, MOADFS and ASSP	
	8. Award contracts for feasibility and design studies of new schemes	January 2017	Project Manager ASSP	
	9. Upscale Training of Trainers (ToTs) activities for CA training Plan	November 2016	Project Manager	
	10. Undertake stakeholder consultations for the Institutional Strengthening Strategy and expedite its implementation	January 2017	Knowledge Management Officer	
Sustainability	11. Prioritise the establishment and capacity building of Water User Organisations to increase the likelihood of sustaining interventions related to operations and maintenance of the irrigation scheme and agronomic practices.	December 2016	Project Manager	
	12. Compile SOEs and related support documents for eligible expenditure previously not claimed and include it in the next WA.	31 <sup>st</sup> October 2016	Financial Controller	
	13. Reconcile Project commitments and expenditure on a quarterly basis.	ongoing	Financial Controller and Procurement Officer	
Fiduciary Aspects	14. Prepare and submit a WA to IFAD once expenditures reach 20% of the initial deposit.	ongoing	Financial Controller	
	15. Follow up finalisation of Project audit and submit the audit report with the related management letter to IFAD.	21 <sup>st</sup> October 2016	Project Manager	
	16. Fast-track completion of approvals and submission to IFAD of a request for Project extension.	31 <sup>st</sup> October 2016	Director, Crop Production	
	17. Revise the AWPB and Procurement plan and submit them to IFAD for No Objection.	31 <sup>st</sup> October 2016	Project Manager	
	18. Compile a contract register and contract monitoring forms for all contracts entered into and update them regularly.	ongoing	Procurement Officer	

### Appendix 4: Physical Progress Measured against AWP&B, Including RIMS Indicators

Indicators	Unit	Annual Target	Annual result	%	Appraisal target	Revised target	Cumulative result	%
<b>Component 1. Sustainable Agricultural Production</b>								
<b>Output 1.1 Efficient agricultural mechanisation services available to smallholder farmers</b>								
Government-owned tractors/implements sold or leased to private machinery contractors	number	n.a.	0	n.a.	n.a.	n.a.	0	n.a.
<b>Private machinery contractors trained (RIMS: Staff of service providers trained)</b>	<b>Men</b>	<b>120</b>	<b>110</b>	<b>91.7%</b>	<b>155</b>	<b>n.a</b>	<b>141</b>	<b>90%</b>
	<b>women</b>	<b>80</b>	<b>95</b>	<b>84.2%</b>	<b>105</b>	<b>n.a</b>	<b>127</b>	<b>82.7%</b>
Private machinery contractors provided with Business Development Services (RIMS: People trained in business and entrepreneurship skills)	Men	n.a.	0	n.a.	n.a.	n.a.	0	n.a.
	Women	n.a.	0	n.a.	n.a.	n.a.	0	n.a.
Private machinery operators accredited	Men	n.a.	0	n.a.	n.a.	n.a.	0	n.a.
	Women	n.a.	0	n.a.	n.a.	n.a.	0	n.a.
Demonstrations with improved mechanized agricultural equipment	Number	n.a.	0	n.a.	n.a.	n.a.	0	n.a.
Demonstrations with improved animal-drawn agricultural implements	Number	n.a.	0	n.a.	n.a.	n.a.	0	n.a.
<b>Mechanization officers trained on agricultural equipment and farm operations (RIMS: Government officials and staff trained)</b>	<b>Men</b>	<b>125</b>	<b>62</b>	<b>49.6%</b>	<b>125</b>	<b>n,a</b>	<b>62</b>	<b>49.6%</b>
	<b>Women</b>	<b>100</b>	<b>59</b>	<b>59%</b>	<b>100</b>	<b>n,a</b>	<b>59</b>	<b>59%</b>
Private contractors trained on agricultural equipment and farm operations (RIMS: Government officials and staff trained)	Men	n.a.	0	n.a.	112	112	0	0%
	women	n.a.	0	n.a.	48	48	0	0%
<b>Output 1.2 Improved rain fed agricultural practices adapted, tested and demonstrated</b>								
Adaptive research trial sites established	Site	n.a.	0	n.a.	70	70	0	0%
Adaptive research trials conducted	Trial	n.a.	0	n.a.	260	260	0	0%

Indicators	Unit	Annual Target	Annual result	%	Appraisal target	Revised target	Cumulative result	%
Adaptive research reports produced	Number	n.a.	0	n.a.	n.a.	n.a.	0	n.a.
<b>SMSs, ADs and lead farmers trained in improved crop production technologies (RIMS: Government officials and staff trained)</b>	<b>Men</b>	<b>200</b>	<b>234</b>	<b>117%</b>	<b>300</b>	<b>na</b>	<b>334</b>	<b>111%</b>
	<b>Women</b>	<b>200</b>	<b>258</b>	<b>129%</b>	<b>400</b>	<b>na</b>	<b>395</b>	<b>98.8%</b>
Demonstration plots established in the project area	Number	10	0	0%	30	30	0	0%
Crop demonstrations conducted at demonstration sites	Number	n.a.	0	n.a.	115	115	0	0%
Farmers exposed to improved crop production methods at demonstration	Men	n.a.	0	n.a.	n.a.	n.a.	0	n.a.
<b>Farmers trained in conservation agriculture (RIMS: People trained in crop production and technologies)</b>	<b>Men</b>	<b>290</b>	<b>223</b>	<b>76.9%</b>	<b>290</b>	<b>na</b>	<b>223</b>	<b>76.9%</b>
	<b>Women</b>	<b>250</b>	<b>138</b>	<b>55.2%</b>	<b>250</b>	<b>na</b>	<b>138</b>	<b>55.2%</b>

#### Output 1.3 Pilot scheme for smallholder wastewater irrigation established

Smallholder farmers to whom land in the pilot scheme has been allocated (RIMS: People in groups managing infrastructure formed/strengthened)	Men							
	Women							
Developed irrigable area in the irrigation scheme (RIMS: Land under irrigation schemes constructed/rehabilitated)	Ha							
People trained in irrigation scheme management (RIMS: People trained in infrastructure management)	Men							
	Women							
	Persons 35 years old or below							
<b>Farmers trained in irrigated crop production (RIMS: People trained in crop production and technologies)</b>	<b>Men</b>	<b>8</b>	<b>8</b>	<b>100%</b>		<b>na</b>		<b>100%</b>
	<b>Women</b>	<b>12</b>	<b>12</b>	<b>100%</b>		<b>na</b>		<b>100%</b>
	<b>Persons 35 years or below</b>	<b>12</b>	<b>12</b>	<b>100%</b>		<b>na</b>		<b>100%</b>

Indicators	Unit	Annual Target	Annual result	%	Appraisal target	Revised target	Cumulative result	%
<b>Farmers trained in post-harvest handling/marketing of irrigated crops (RIMS: People trained in post-production, processing and marketing)</b>	Men	8		100%		na		100%
	Women	12		100%		na		100%
	Persons 35 years or below	12		100%		na		100%

## Component 2. Enabling Environment for smallholder

### Output 2.1 Capacity to deliver extension services improved

SMSs and ADs trained in extension methodologies (RIMS: Government officials and staff trained)	Men							
	Women							
Additional ADs recruited and mobile	Men							
	Women							
Ratio of farmers per extension worker reduced	Farmers per AD							
Agro-dealers trained (RIMS: Staff of service providers trained)	Men							
	Women							
Village-based agents trained	Men							
	Women							

### Output 2.2 Agricultural Service Centres constructed and equipped to provide stakeholder identified services

<b>ASCs established</b>	<b>Number</b>	<b>3</b>	<b>3</b>	<b>100%</b>	<b>15</b>	<b>na</b>	<b>3</b>	<b>20%</b>
Cluster management committees established / supported	Number	n.a.	0	n.a.	n.a.	n.a.	0	n.a.
Enterprises servicing smallholder farmers operating from ASCs	Number	n.a.	0	n.a.	n.a.	n.a.	0	n.a.

### Output 2.3 Core agricultural institutional framework re-focused and strengthened

Changes made to ISPAAD operations / services as a result of the ASSP- supported	Number	n.a.	0	n.a.	n.a.	n.a.	0	n.a.
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Indicators	Unit	Annual Target	Annual result	%	Appraisal target	Revised target	Cumulative result	%
comprehensive review								
Farmers benefitting from new land allocations	Men	n.a.	0	n.a.	n.a.	n.a.	0	n.a.
	Women	n.a.	0	n.a.	n.a.	n.a.	0	n.a.
	persons 35 years old or below	n.a.	0	n.a.	n.a.	n.a.	0	n.a.
<b>Component 3. Project Management</b>								
<b>Output 3.1 Effective project administration and coordination</b>								
Key consultative stakeholder workshops held	Number	n.a.	0	n.a.	6	6	0	0%
Study and survey reports produced	Number	n.a.	0	n.a.	7	7	0	0%
Project expenditure compared to budgets	BWP ('000)	25,360	0	0%	165,140	165,140	0	0%
AWPBs, annual reports and audit reports submitted on time	Number	3	3	100%	15	na	12	80%

## Appendix 5: Financial – Actual Financial Performance by Financier; by Component and Disbursements by Category

**Table 5A: Financial performance by financier**

Financier	Appraisal (USD '000)	Disbursements (USD '000)	Per cent disbursed
IFAD loan	4,040	622	15%
IFAD grant	1,610	416	26%
Beneficiaries	290	-	0%
Government	19,080	4,849	25%
<b>Total</b>	<b>25,020</b>	<b>5,887</b>	<b>24%</b>

**Table 5B: Financial performance by financier by component (USD '000)**

Component	IFAD loan			IFAD grant			Government			Beneficiaries			Total		
	Appraisal	Actual	%	Appraisal	Actual	%	Appraisal	Actual	%	Appraisal	Actual	%	Appraisal	Actual	%
Sustainable agricultural production	1,620	281.35	17%	1,099	256.19	23%	3,056	361.82	12%	289	-	0%	6,064	899.36	15%
Enabling environment for Smallholder Agriculture	2,013	202.47	10%	512	10.62	2%	14,462	3,491.39	24%	-	-	0%	16,987	3,704.48	22%
Project Management	407	282.71	69%	-	-	-	1,564	838.13	54%	-	-	0%	1,971	1,120.84	57%
<b>Total</b>	<b>4,040</b>	<b>766.53</b>	<b>19%</b>	<b>1,611</b>	<b>266.81</b>	<b>17%</b>	<b>19,082</b>	<b>4,691.34</b>	<b>25%</b>	<b>289</b>	<b>-</b>	<b>0%</b>	<b>25,021</b>	<b>5,724.68</b>	<b>23%</b>

**Table 5C: IFAD loan disbursements (SDR, as at 30 September, 2016)**

Category	Category description	Original Allocation	Revised Allocation	Disbursement	W/A pending	Balance	Per cent disbursed
I	Vehicles, equipment and materials	950,000.00	375,000.00	30,721.11	101,342.23	243,386.66	35%
II	Civil works for irrigation pilot schemes	-	650,000.00	-	13,688.14	636,311.86	2%
III (b)	Technical support – on farm research studies for all other sub components	530,000.00	530,000.00	112,383.42	-	417,616.58	21%
IV	Improved Extension outreach	970,000.00	970,000.00	21,347.49	81,713.12	866,939.39	11%
	Unallocated	150,000.00	75,000.00	-	-	75,000.00	0%
	Initial deposit	-	-	254,949.80	-	(254,949.80)	-
	<b>Total</b>	<b>2,600,000.00</b>	<b>2,600,000.00</b>	<b>418,951.82</b>	<b>196,743.49</b>	<b>1,984,304.69</b>	<b>24%</b>

**Table 5D: IFAD Grant disbursements (SDR, as at 30 September, 2016)**

Category	Category description	Original Allocation	Revised Allocation	Disbursement	W/A pending	Balance	Per cent disbursed
I	Vehicles, equipment and materials	145,000.00	45,000.00	4,534.94	3,622.50	36,842.56	18%
II	Civil works for irrigation pilot schemes	210,000.00	385,000.00	16,792.70	-	368,207.30	4%
III (b)	Technical support – on farm research studies for all other sub components	365,000.00	360,000.00	117,647.42	18,796.24	228,556.34	37%
IV	Improved Extension outreach	230,000.00	230,000.00	4,480.73	2,324.22	223,195.05	30%
	Unallocated	75,000.00	-	-	-	-	-
	Initial deposit	-	-	125,204.36	-	(125,204.36)	-
	Start-up costs	-	-	14,554.35	-	(14,554.35)	-
	<b>Total</b>	<b>1,025,000.00</b>	<b>1,025,000.00</b>	<b>283,214.50</b>	<b>24,742.97</b>	<b>717,042.53</b>	<b>30%</b>

**Figure 1: IFAD loan/grant disbursement, comparisons between original and revised allocations and actual disbursement**

Category	Category Description	Original Allocation	Revised Allocation	Disbursement	Balance	Percentage Disbursed
1	Vehicles, equipment and materials	1,095,000.00	420,000.00	34,806.05	385,193.95	8%
2	Civil works for irrigation pilot schemes	210,000.00	1,035,000.00	16,792.70	1,018,207.30	2%
3 (a)	Technical support – on farm research studies for pilot scheme for smallholder waste water irrigation	530,000.00	530,000.00	112,383.42	417,616.58	21
	Technical support – on farm research studies for pilot scheme for smallholder waste water irrigation	365,000.00	365,000.00	117,647.42	247,352.58	32%
4	Improved Extension outreach	1,200,000.00	1,200,000.00	25,828.22	1,174,171.78	2%
	Unallocated	225,000.00	75,000.00	-		
	Initial Deposit	-	-	380,154.16	(380,154.16)	-
	Start up costs	-	-	14,554.35	(14,554.35)	-
<b>Total</b>		<b>3,625,000.00</b>	<b>3,625,000.00</b>	<b>702,166.32</b>	<b>2,922,833.68</b>	<b>19%</b>

## Appendix 6: Compliance with legal covenants: Status of implementation

Section	Covenant	Target/Action Due Date	Compliance Status/Date	Remarks
<b>GC Section 4.02.</b> Withdrawals from the Loan and Grant Accounts	(a)After the date of entry into force of the Agreement, the Borrower/ Recipient may request withdrawals from the Loan Account and/or Grant Account for Eligible Expenditures. (b)No withdrawal shall be made from the Loan and/or Grant Accounts until the first AWPB has been approved by the Fund and all other conditions specified in the Financing Agreement precedent to withdrawal fulfilled.	From 21 February, 2012	Withdrawal Application for Initial Deposit submitted in December, 2012 First AWPB approved in May, 2012	
<b>GC Section 4.05.</b> Transfer by the Fund	Upon receipt of an authenticated and satisfactory application for withdrawal from the Borrower/Recipient, the Fund shall transfer to the account specified by the Borrower/Recipient the amount specified therein.	From 21 February, 2012	Initial deposit disbursed by IFAD on 27 December, 2012	Designated account was not opened as GoB opted to use a single Government remittance account
<b>GC Section 4.08.</b> Eligible Expenditures	(a) The Financing shall be used exclusively to finance expenditures meeting each of the following eligibility requirements: (i) expenditure for reasonable cost of goods, works and services required for the Project and covered by the relevant AWPB and procured in conformity with the Fund's Procurement Guidelines. (ii) expenditure incurred during the Project Implementation Period, except that expenditures to meet the costs of winding up the Project which may be incurred after the Completion Date but before the Financing Closing Date. (iii) expenditure incurred by a Project Party. (iv) expenditure must relate to a category whose allocation has not been depleted, and shall be eligible only up to the applicable percentage. (v) expenditure shall be otherwise eligible in accordance with the terms of the Financing Agreement as may be amended from time to time. (c) any payment prohibited by a decision of the United Nations Security Council, shall not be eligible for financing. (d) any payments to a person or an entity, or for any goods, works or services, if making or receiving such payment constitutes a coercive, collusive, corrupt or fraudulent practice by any representative of the Borrower/Recipient or any Project Party, shall not be eligible for financing.	Continuous	Will be monitored during implementation	
<b>GC Section 7.01.</b> Project Implementation	(a)The Borrower and each of the Project Parties shall carry out the Project: (i) with due diligence and efficiency; (ii) in conformity with appropriate agricultural and rural development practices and good governance; (iii) in accordance with plans, design standards, specifications, procurement and work schedules and construction methods agreed by the Borrower/ Recipient and the Fund; (iv) in accordance with the provisions of the relevant Agreement, the AWPBs, and the Procurement Plan;	Continuous	Will be monitored during implementation	

Section	Covenant	Target/Action Due Date	Compliance Status/Date	Remarks
	<p>(v) in accordance with the policies, criteria and regulations relating to agricultural development financing laid down from time to time by the Governing Council and Executive Board of the Fund; and</p> <p>(vi) so as to ensure the sustainability of its achievements over time.</p> <p>(b)(i) The Project shall be implemented on the basis of AWPB. The Lead Project Agency shall prepare a draft Project AWPB, which shall include, a detailed description of planned Project activities during the coming Project Year, a Procurement Plan, and the sources and uses of funds.</p> <p>(ii) The Lead Project Agency shall submit the draft AWPB to the oversight body designated by the Borrower/Recipient for its review. When so reviewed, the Lead Project Agency shall submit the draft AWPB to the Fund for comments no later than 60 days before the beginning of the relevant Project Year. If the Fund does not comment on the draft AWPB within 30 days of receipt, the AWPB shall be deemed acceptable to the Fund.</p> <p>(iii) The Lead Project Agency shall adopt the Project AWPB in the form accepted by the Fund.</p> <p>(iv) The Lead Project Agency may propose adjustments in the Project AWPB during the relevant Project Year, which shall become effective after acceptance by the Fund.</p>	On going		
<b>GC Section 7.02.</b> Availability of Financing Proceeds	(b)The Borrower/Recipient may open and maintain one or more Project Accounts for Project operations in a bank acceptable to the Fund, and shall identify the Project Party responsible for operating such account or accounts.		A project account not opened, funds monitored by ledgers i the GoB accounting system (GABS)	
<b>GC Section 7.03.</b> Availability of Additional Resources	<p>(a) In addition to the proceeds of the Financing, the Borrower/Recipient shall make available to the Project Parties:</p> <p>(i) such funds, facilities, services and other resources as may be required to carry out the Project in accordance with Section 7.01.</p> <p>(ii) counterpart funds from its own resources in accordance with its customary national procedures for development assistance.</p>	Continuous	Done	So far GoB's contribution of is over 80% of total project cost since implementation inception
<b>GC Section 7.04.</b> Coordination of Activities	In order to ensure that the Project is carried out in accordance with Section 7.01, the Borrower/Recipient shall ensure that the relevant activities of its ministries, departments and agencies, and those of each Project Party, are conducted and coordinated in accordance with sound administrative policies and procedures.	Continuous	Will be monitored during implementation	
<b>GC Section 7.05.</b> Procurement	(a)Procurement of goods, works and services financed by the Financing shall be carried out in accordance with the provisions of the Borrower/Recipient's procurement regulations, to the extent such are consistent with the IFAD Procurement Guidelines. Each Procurement Plan shall identify procedures which must be implemented by the Borrower/Recipient in order to ensure consistency with the IFAD Procurement Guidelines.	Continuous	Done so far	There have been significant delays in procurement. These delays are being overcome with support from Senior management of MoADFS
	(b)The Fund may require that all bidding documents and contracts for procurement of goods, works and services financed by the Financing include provisions requiring bidders, suppliers, contractors, sub-contractors and consultants to:	Continuous	Will be monitored during implementation	

Section	Covenant	Target/Action Due Date	Compliance Status/Date	Remarks
	(i) allow full inspection by the Fund of all bid documentation and related records; (ii) maintain all documents and records related to the bid or contract for three years after completion of the bid or contract; and (iii) cooperate with agents or representatives of the Fund carrying out an audit or investigation.			
<b>GC Section 7.06.</b> Use of Goods and Services	All goods, services and buildings financed by the Financing shall be used exclusively for the purposes of the Project.	Continuous	Will be monitored during implementation	
<b>GC Section 7.07.</b> Maintenance	The Borrower/Recipient shall ensure that all facilities and civil works used in connection with the Project are properly operated and maintained and that all necessary repairs of such facilities are made promptly as needed.	Continuous	Will be monitored during implementation	
<b>GC Section 7.08.</b> Insurance	(a)The Borrower/Recipient or the Lead Project Agency shall insure all goods and buildings used in the Project against such risks and in such amounts as shall be consistent with sound commercial practice. (b)The Borrower/Recipient or the Lead Project Agency shall insure the goods imported for the Project against hazards incident to the acquisition, transportation and delivery thereof to the place of use or installation in accordance with sound commercial practice.	Continuous	Will be monitored during implementation	Done
<b>GC Section 7.09.</b> Subsidiary Agreements	(a)The Borrower/Recipient shall ensure that no Project Party shall enter into any Subsidiary Agreement, or consent to any modification thereof, inconsistent with the Financing Agreement. (b)The Borrower/Recipient and each Project Party shall exercise its rights under any Subsidiary Agreement to which it is party to ensure that the interests of the Borrower/Recipient and the Fund are fully protected and the Project is carried out in accordance with Section 7.01. (c)No provision of any Subsidiary Agreement to which the Borrower/ Recipient is a party shall be assigned, waived, suspended, abrogated, amended or otherwise modified without the prior consent of the Fund. (d)The Borrower/Recipient shall bear any foreign exchange risk under any Subsidiary Agreement to which it is party, unless otherwise agreed by the Fund.	Continuous	Will be monitored during implementation	
<b>GC Section 7.10.</b> Performance of the Agreements	(a)The Borrower/Recipient shall be fully responsible to the Fund for the due and timely performance of all obligations ascribed to it, the Lead Project Agency and all other Project Parties under any Agreement. To the extent any Project Party enjoys legal personality separate from the Borrower/Recipient, any reference to an obligation of such Project Party in an Agreement shall be deemed an obligation of the Borrower/Recipient to ensure that such Project Party performs such obligation. The acceptance by any Project Party of any obligation ascribed to it in an Agreement shall not affect the responsibilities and obligations of the Borrower/Recipient. (b)The Borrower/Recipient shall take all necessary or appropriate action within its powers to enable and assist the Lead Project Agency and any other Project Party to perform its obligations under an Agreement. The Borrower/ Recipient shall not take, and shall not	Continuous	Will be monitored during implementation	

Section	Covenant	Target/Action Due Date	Compliance Status/Date	Remarks
	permit any third party to take, any action that would interfere with such performance.			
<b>GC Section 7.11.</b> Key Project Personnel	The Borrower/Recipient or the Lead Project Agency shall appoint the Project Coordinator and all other key Project personnel in the manner approved by the Fund. All key Project personnel shall have qualifications and experience specified approved by the Fund. The Borrower/Recipient shall exercise best efforts to ensure continuity in key Project personnel throughout the Project Implementation Period. The Borrower/Recipient or the Lead Project Agency shall insure key Project personnel against health and accident risks to the extent consistent with sound commercial practice or its customary practice in respect of its national civil service, whichever is appropriate.	Continuous	Will be monitored during implementation	Key project staff appointed. Issue of high staff turnover also discussed and being addressed by GoB
<b>GC Section 7.12.</b> Project Parties	Each Project Party shall, as required to carry out the Project in accordance with Section 7.01: (a) promptly take all necessary or appropriate action to maintain its corporate existence and to acquire, maintain and renew its rights, properties, powers, privileges and franchises; (b) employ competent and experienced management and personnel; (c) operate, maintain and replace its plant, equipment and other properties; (d) not sell, lease or otherwise dispose of any of the Project's assets, except in the normal course of business or as agreed by the Fund.	Continuous	Will be monitored during implementation	
<b>GC Section 7.13.</b> Allocation of Project Resources	The Borrower/Recipient and the Project Parties shall ensure that the resources and benefits of the Project, to the fullest extent practicable, are allocated among the Target Population using gender disaggregated methods.	Continuous	Will be monitored as implementation continues	
<b>GC Section 7.14.</b> Environmental Factors	The Borrower/Recipient and the Project Parties shall take all reasonable measures to ensure that the Project is carried out with due diligence in regard to environmental factors and in conformity with national environmental laws and any international treaties to which the Project Member State may be party. In particular, the Project Parties shall maintain appropriate pest management practices under the Project and, to that end, shall comply with the principles of the International Code of Conduct on the Distribution and Use of Pesticides of FAO, as amended, and ensure that pesticides procured under the Project do not include any pesticide formulation which would be classified as Extremely Hazardous (Class Ia) or Highly Hazardous (Class Ib) according to the WHO Recommended Classification of Pesticides by Hazard, as amended.	Continuous	Will be monitored as implementation continues	
<b>GC Section 8.03.</b> Progress Report and Mid-Term Reviews	(a)The Lead Project Agency shall furnish to the Fund periodic progress reports on the Project, in such form and substance as the Fund shall reasonably request. At a minimum, such reports shall address (i) quantitative and qualitative progress made in implementing the Project and achieving its objectives, (ii) problems encountered during the reporting period, (iii) steps taken or proposed to be taken to remedy these problems, and (iv) the proposed programme of activities and the progress expected during the following reporting period. (b)The Lead Project Agency and the Fund shall jointly carry out a review of Project implementation no later than the midpoint of the Project Implementation Period (the "Mid-	Continuous	Will be monitored as implementation proceeds  Complied	Progress reports submitted during supervision mission

Section	Covenant	Target/Action Due Date	Compliance Status/Date	Remarks
	Term Review") based on terms of reference prepared by the Lead Project Agency and approved by the Fund. Among other things, the Mid-Term Review shall consider the achievement of Project objectives and the constraints thereon, and recommend such reorientation as may be required to achieve such objectives and remove such constraints. (c)The Borrower/Recipient shall ensure that the recommendations resulting from the Mid-Term Review are implemented within the specified time therefor and to the satisfaction of the Fund. Such recommendations may result in modifications to the Agreement or cancellation of the Financing.	30 September 2014		
<b>GC Section 8.04.</b> Completion Report	No later than the Financing Closing Date the Borrower/Recipient shall furnish to the Fund a report on the overall implementation of the Project. At a minimum, such report shall address (i) the costs and benefits of the Project, (ii) the achievement of its objectives, (iii) the performance by the Borrower/Recipient, the Project Parties, the Fund of their respective obligations under the Agreement and (iv) lessons learned.	30 September, 2017	Not due yet	
<b>GC Section 9.02.</b> Financial Statements	The Borrower/Recipient shall deliver to the Fund detailed financial statements of the operations, resources and expenditures related to the Project for each Fiscal Year prepared in accordance with standards and procedures acceptable to the Fund and deliver such financial statements to the Fund within 4 months of the end of each Fiscal Year.	31 January each year		Statements were submitted as part of progress report
<b>GC Section 9.03.</b> Audit of Accounts	The Borrower/Recipient shall: (a)each Fiscal Year, have the accounts relating to the Project audited in accordance with auditing standards acceptable to the Fund and the Fund's Guidelines on Project Audits (for Borrowers' Use); (b)within 6 months of the end of each Fiscal Year, furnish to the Fund a certified copy of the audit report. The Borrower/Recipient shall submit to the Fund the reply to the management letter of the auditors within one month of receipt thereof; (c) if the Borrower/Recipient does not timely furnish any required audit report in satisfactory form and the Fund determines that the Borrower/ Recipient is unlikely to do so within a reasonable period, the Fund may engage independent auditors of its choice to audit the accounts relating to the Project. The Fund may finance the cost of such audit by withdrawal from the Loan and/or Grant Accounts.	31 March, every year	Audit report for 2015/16 received by IFAD on 14 October, 2016	Delayed by two weeks.
<b>GC Section 9.04.</b> Other Financial Reports and Information	In addition to the reports and information required by the foregoing provisions: (a)The Borrower/Recipient and the Project Parties shall promptly furnish to the Fund such other reports and information as the Fund shall reasonably request on any financial matter relating to the Financing or the Project or any Project Party. (b)The Borrower/Recipient shall promptly inform the Fund of any condition that interferes with, or threatens to interfere with, the maintenance of Loan Service Payments. (c) The Project Member State shall promptly furnish to the Fund all information that the Fund may reasonably request with respect to financial and economic conditions in its territory, including its balance of payments and its external debt.	Continuous	To be monitored as implementation continues	Progress reports are not being submitted quarterly to IFAD

Section	Covenant	Target/Action Due Date	Compliance Status/Date	Remarks
<b>GC Section 10.05.</b> Evaluations of the Project	(a)The Borrower/Recipient and each Project Party shall facilitate all evaluations and reviews of the Project that the Fund may carry out during the Project Implementation Period and for 10 years thereafter. (b)"Facilitate", includes providing timely logistical support by making available Project personnel and equipment and promptly taking such other action as the Fund may request in connection with such evaluations and reviews, but does not include incurring out-of-pocket expenses.	Continuous	To be monitored as implementation continues	
<b>GC Section 11.01.</b> Taxation	(c)The use of any proceeds of the Financing to pay for Taxes is subject to the Fund's policy of requiring economy and efficiency in the use of its Financing. Therefore, if the Fund at any time determines that the amount of any such Tax is excessive, discriminatory or otherwise unreasonable, the Fund may reduce the percentages of Eligible Expenditures to be financed by the Financing.	Continuous	Currently, GOB paying taxes. To be monitored as implementation continues	
<b>GC Section 11.02.</b> Tax Refunds	If the Fund determines at any time that any amount of Financing proceeds have been used to pay Taxes that it has determined to be excessive, discriminatory or otherwise unreasonable, it may require the Borrower/ Recipient to refund such amount promptly to the Fund.	Continuous	Currently, GOB paying taxes. To be monitored as implementation continues	

## Appendix 7: Knowledge Management: Learning and Innovation

### Learning

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**Conservation Agriculture (CA)** – The learning processes within ASSP is to ensure that lessons learned and good practices from other parts of the region and the world are broadly disseminated within Botswana and that knowledge generated within the Project is systematically identified, analysed, documented and shared. Accordingly, a study tour was arranged by ASSP where selected farmers, PMT and GoB staff travelled to Zambia for learning experiences in the area of CA. Zambia, compared to Botswana, is much more advanced in the adoption of Conservation Agriculture techniques; the Zambian experience suggests that there has generally been an extended lead time with a few early adopters before the majority of farmers follow suit. The Project is testing and demonstrating CA-related farming implements supported by evaluation and documentation of results; it is also undertaking on-farm adaptive trials and demonstrations. The farmers that participated in the study tour to Zambia are very active participants in the demonstrations; in many cases, the Project is using their farms for the different demonstrations.

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### Innovation: Describe any interesting innovation noted during supervision

**Agricultural Service Centre (ASC)** – One of the major outcomes of ASSP is to construct and equip fifteen ASCs. The Supervision and Implementation Support Mission visited the only completed and operational ASC in Jwaneng, Ngwaketse West Sub-District, Southern District. The ASC is being run by the Botswana Agricultural Marketing Board (BAMB). BAMB is proving a variety of services to farmers. Such services include: a) the provision of farm inputs (both crop and livestock-related inputs); b) information, training/extension services that includes the recommended ways of using the purchased inputs; and c) a market for the farmers' produce. In addition, for those farmers that cannot afford to deliver their produce to the ASC, an arrangement is made where BAMB (or its agents) travels to farmers' locations. The produce is weighed, graded (after undertaking the requisite tests) and the final price established at the farmers' homes. However, the ASC has a catchment area that expands to as far as 200 km away. The Mission felt that this was too wide an area. The Mission advised BAMB to consider having satellite centres in different locations to help take the needed services closer to the people. It is worth pointing out that the provision of the different services at the ASC is in close liaison with the relevant District Officers (crops and livestock) to ensure that there is no provision of contrasting messages to farmers. The Mission also recommended to both BAMB and the PMT that the Jwaneng ASC should provide some learning experiences (guidance) to the remaining 14 ASCs that are still at different stages of development.

## Annex 1: List of People Met

No.	Name	Job Title	Organisation	Contact
1.	Kekgonne E. Baipoledi	Deputy Permanent Secretary (Technical Service)	MoA	
2.	Galeitsiwe Ramokapane,	Acting Deputy Permanent Secretary (Support Services) and also Director of Crop Production	MoA	
3.	Glaitsiwe T. Ramokapane	Acting DPS - Support Services	MoA	<a href="mailto:gramokapane@gov.bw">gramokapane@gov.bw</a>
4.	Orman Roy	Project Manager	ASSP PMT	<a href="mailto:oroy@gov.bw">oroy@gov.bw</a>
5.	Dipuo Koka	Assistant Project Manager	ASSP	<a href="mailto:dkoka@gov.bw">dkoka@gov.bw</a>
6.	Neo G. Kolo	Financial Controller	ASSP	<a href="mailto:ngkoloji@gov.bw">ngkoloji@gov.bw</a>
7.	Maduo J. Kesetse	M&E Officer	ASSP	<a href="mailto:mkesetse@gov.bw">mkesetse@gov.bw</a>
8.	Zibani D. Phillime		ISPAAD	<a href="mailto:zphillime@gov.bw">zphillime@gov.bw</a>
9.	Thapelo Otisitswe	Mechanisation Officer	ASSP	<a href="mailto:totisitswe@gov.bw">totisitswe@gov.bw</a>
10.	Tebogo Modisenyanane	Procurement Officer	ASSP	<a href="mailto:tmodisenyanane@gov.bw">tmodisenyanane@gov.bw</a>
11.	Mokwadi Mapitse	Irrigation Officer	ASSP	<a href="mailto:mmapitse@gov.bw">mmapitse@gov.bw</a>
12.	Tirelo Ditshipi	Information and Communications Officer	ASSP	<a href="mailto:trditshipi@gov.bw">trditshipi@gov.bw</a>
13.	Gadatsiwe T. Mmonoki	L.H.O	Central District	4630473
14.	Kealeboga Tonoto	Agronomist	Central District	<a href="mailto:ktonoko@gmail">ktonoko@gmail</a>
15.	Kabelo Molelekeng	Agricultural Engineer	MoA	4920240
16.	Thompson Manyala	SDCPO	MoA	<a href="mailto:tmanyala@gov.bw">tmanyala@gov.bw</a>
17.	Sebaga R. Monyena	Mechanisation Specialist	MoA	<a href="mailto:smonyena@gov.bw">smonyena@gov.bw</a>
18.	Velleminah S. Pelokgale	Central District Crop Production Officer	Central District	<a href="mailto:vpelokgale@gov.bw">vpelokgale@gov.bw</a>
19.	Boplupa Makgethe	ASSP Focal Person	Central District	<a href="mailto:bopmakgethe@gmail.com">bopmakgethe@gmail.com</a>
20.	Clifas Kemiso	PRO	Central District	<a href="mailto:ckemiso@gov.bw">ckemiso@gov.bw</a>
21.	Onneilwe E. Mokgethi	Farmer	Central District	71806708
22.	Gertrude Molelekwa	Farmer	Central District	71650993
23.	Darabile Nkoioi	Farmer	Central District	74565953
24.	Prom Motswaiso	Farmer	Central District	71881997
25.	Refilwe Bantsi	Farmer	Central District	74582920

## **Annex 2: Technical Report on Component 1 – Sustainable Agricultural Production**

### **A. Introduction**

1. The Agricultural Services Support Project (ASSP) is a USD25.02 million project, jointly financed by the Government of Botswana (GoB) (USD 19.08m) and the International Fund for Agricultural Development (IFAD), (IFAD LOAN NO: 818-BW, for USD 4.04m, and a USD 1.61m grant, IFAD GRANT NO: I-C-818-BW). The Department of Crop Production under the Ministry of Agricultural Development and Food Security (MoADFS) is the institution responsible for implementation.

68. The critical dates on the project were or are; (i) **December 2010**, approval of The Financing Agreement by IFAD's Executive Board, (ii) **February 22, 2012**, the effective date of the signing of the Financing Agreement and (iii), **March 31, 2017**, scheduled date for project completion.

69. The goal of the project is to “*contribute to economic diversification, reduction of rural poverty and food insecurity, and improved livelihoods of rural communities*”. The development objective is “*to achieve a viable and sustainable smallholder agricultural sector based on farming as a business, which is not reliant on subsidies or welfare measures*”.

70. The anticipated results are a significant increase in household income from crop production in 13,000 of the 20,000 households targeted by the project, and an increase in average cereal yields from 0.25 t/ha to 1.0 t/ha. In addition, the ASSP is to construct and render functional 15 Agricultural Service Centres (ASCs) located in 7 districts and build and implement a 29 ha irrigation scheme using treated wastewater to grow horticultural produce.

### **B. Project Components**

71. The project has three components and six sub-components :

1. Component 1: Sustainable Agricultural Production P17,130,717 (US\$ 1,689,420)
  - Sub-Component 1.1: Agricultural Mechanization P1, 907,767.00 (US\$ 188,143)
  - Sub-Component 1.2: Improved Rain-fed Agricultural Practices P1,015,950 (US\$100192)
  - Sub-Component 1.3: Pilot Scheme for Smallholder Wastewater Irrigation, P14,207,000 (US\$1,401,085)
2. Component 2: Enabling Environment for Smallholder Agriculture P34,645,182 (US\$3,416,685)
  - Sub-Component 2.1: Improved Delivery of Extension Service P2, 737, 704 (US\$269,991)
  - Sub-Component 2.2: Agricultural Services Centers (ASCs) P30, 692, 479 (US\$3,026,872)
  - Sub-Component 2.3: Institutional Strengthening BP1, 215,000 (US\$ 119, 822)
3. Component 3: Project Management BP2,042,655 (US\$201,445)

72. This report documents the implementation and technical issues for Component 1: Sustainable Agricultural Production, arising from the supervision mission of 03 to 15 October 2016. It provides main recommendations and some key action items for follow up as discussed with the project implementers.

### **C. Description of Component 1 – Sustainable Agricultural Production**

73. This component aims to achieve a sustainable increase in smallholder agricultural productivity; by bridging the gap between current and potential rain-fed crop yields as well as demonstrating a viable model for the use of urban wastewater for smallholder irrigation scheme. It is delivered through three sub-components:

- Subcomponent 1.1: Agricultural Mechanization focusing on the use of agricultural machinery to promote agricultural productivity.
- Subcomponent 1.2: Improved Rain-fed Agricultural Practices focusing on adoption of Conservation Agricultural (CA) techniques (minimum soil disturbance, crop cover and crop rotation) as a means of improving agricultural productivity. Agricultural demonstrations, farmer field schools as well as technical trainings are conducted under this sub-component.
- Subcomponent 1.3: Pilot Scheme for Smallholder Wastewater Irrigation focusing on the construction of an irrigation scheme at Palapye, using treated effluent water from the Water Utilities Corporation (WUC) Wastewater Treatment Works (WWTW) for horticultural production. The pilot irrigation scheme is a staging site which if successful, would be replicated at other sites in the country.

#### **D. ASSP Progress to Date**

74. To assess overall progress on the component, the Mission reviewed the ASSP AWPB 2016-17 of 8 April 2016, conducted a detailed interview with the Agronomy support officer Thapelo Otisitswe on 05th October 2016 and obtained the CA strategy document from the Project Manager Mr. Orman Roy. Further field consultations for verification of the information from interviews were conducted at Serowe District on 07th October 2016. Part of the visit to Serowe District was to see implements purchased and evaluate progress on the coal face of the project. The Mission reviewed conducted interviews with the Irrigation Officer, Mr. Mapitse, as well as held meetings with the Engineer and contractor of the pilot wastewater scheme.

##### **I. Subcomponent 1.1 – Agricultural Mechanisation**

75. The agricultural mechanization sub-component's main purpose is to promote the use of new farming machinery to enhance production. The sustainable use of increased levels of mechanization is one of the essential means of achieving the goal of increased and sustainable food production.

76. The Mission noted that there has been a slow implementation of activities which were planned. One major activity which could have given guidance on how to promote mechanized farming is the mechanization strategy. The mission commends the production of the draft, although this has not yet been finalized.

77. Under this subcomponent, the Project has undertaken 6 out of a planned annual target of 30 (five each in six areas: Mookane, Tutume, Tsetsebjwe, Masunga, Leshibitse and Hatsalatladi) consultation meetings. In addition, one "*training of trainers*" training on Conservative Agriculture (CA), two trainings of private machinery operators, and five training evaluations were undertaken. The training and consultation meetings are mainstreamed in the routine operations of officers in the Department of Crop Production in participating districts and extension areas. This mainstreaming offers significant opportunities for sustainability.

78. Out of the training activities, the Mission commends the training of private machinery operators for contract services. However, in the face of other GoB initiatives under such programs as ISPAAD which subsidize tractor and machinery hire, this activity warrants further analysis. Past empirical experiences critique the sustainability of *public sector* machinery hire services, elevating reasons for past failures of these schemes to small fields with long travel distances, unaffordable rental charges, non-payment of charges, inflexible and inefficient public sector administration, lack of operator and mechanic incentives, break-downs, and the non-sustainability of the subsidies required to keep the service running. The effectiveness of the private contractors could be compromised in the absence of a clear road map for transition from the public to private sector. The Mission **recommends** that this issue be elevated and fleshed out in the mechanization strategy.

79. *Mechanisation Strategy* – The mechanisation strategy is one of many strategies in the agricultural development plans of a country. The agricultural mechanisation strategy (AMS) builds the policy, institutional and market environment in which farmers and other end users have the choice of farm power and equipment suited to their needs within a sustainable delivery and support system.

The AMS covers the spectrum of power sources and tools and equipment. An AMS must of necessity recognise agricultural mechanisation as a process of adoption of labour-productivity enhancing technology.

80. The Mission applauds GoB for undertaking a national tractor, implement and machinery inventory and for developing a draft national mechanisation strategy. It is commendable that MoADFS is driving the process, fulfilling one of the ambitions of AMS formulation; that the process should be driven by the ministry responsible for agriculture. Further, it was noted that the results of the inventory assessment were incorporated into the draft mechanisation strategy, though in very broad terms.

81. The Mission reviewed the draft strategy and **recommends** that there should be clearer alignment of the strategy with the national agricultural development plans and for the strategy to cover the entire machinery value chain. Other data required for the AMS like types of cropping or farming systems, farm power supply and demand profiles, farm management data, prices and inputs costs as well as associated analyses and projections into the future must be incorporated. Other areas for attention include the structure of the draft document and detailed stakeholder analysis.

82. To strengthen and finalise the strategy, the Mission **recommends** that the MoADFS appoints a multi-disciplinary team to carry the process forward and ensure that it is broadened to cover the entire value chain and in depth analysis of policies influencing agriculture. The finalised strategy must map the trajectory of mechanisation in Botswana, as influenced by key policies on subsidies, financial instruments for mechanisation, taxes and duties, prices of other inputs and structure of supporting institutions and services. It must identify the correct strategies for increasing and strengthening mechanization in the country with emphasis on increased crop and livestock production, farmers' livelihoods, and environmentally sustainable production options. A sub activity is for a research study to validate and review the tractor and equipment mix in the country, potential for private contractors for land preparation and harvesting. The terms of reference for the finalisation of the strategy are presented as Attachment 1.

83. *Range of Implements expanded* - In founding mechanisation options, the Mission notes the focus on demonstration of CA implements. Though the majority of farmers targeted in the work plan are yet to adopt CA, the Mission notes that the benefits of CA practices may not be fully realised if they are not complemented and supported by training of farmers on machinery used in other field operations. These other field operations include planting, weeding, spraying for disease and weed control and harvesting.

84. It is **recommended** to expand the range of equipment demonstrated to include, among others, planters, weed/pest control sprayers, threshers, combine harvesters, and primary processing equipment. This would ensure that the entire area on which CA is practiced on the farm is carried from land preparation to harvesting, without a mismatch of capacity on any subsequent field operation along the way. The precursors to this farmer training are (i) availability of competent trainers, (ii) a curriculum for farmer training, and (iii) the availability of the requisite machinery for secondary field operations that support CA.

85. *Skills and capacity* – The Mission **recommends** the project to facilitate the training of Mechanisation Engineers in the MoADFS so that they are able to support other associated field machinery. The profitable use of agricultural machinery and equipment is influenced by how well it is set up, managed, and operated. The training of the engineers in MoADFS can include attachment to equipment manufacturers/suppliers and mechanised farms in the country or at regional/international levels. The aim is to match mechanisation staff to specialist equipment associated with field operations like soil turning, planting, weed/ pest control, threshers and combine harvesters, crop processing. They would undergo training through formal training and skilling through attachment with manufactures of agricultural machinery and equipment in country, at the regional and overseas levels for specialist equipment. In this way, a pool of specialist agricultural engineers would build in Botswana.

86. To support the training of farmers, standardised training materials should be developed. The staff would serve as resource persons for training of trainers in the country and be used to standardise training through review and adoption of relevant training manuals for tractor and equipment calibration, operation and maintenance.

87. The active intervention in key events that promote and demonstrate agricultural machinery and equipment is a key activity that supports awareness building. The Mission **recommends** kick starting or strengthening this through sponsorship at agricultural shows and machinery exhibitions.

88. The Mission noted that inadequate human resourcing of the unit the compromised delivery of the mechanization sub-component. Due to the close linkage between the CA and the mechanization, Mr. Kago Makgoa carries both duties between the two sub-components, though without a clear delineation of specific activities that he must be responsible for. This element is reflected also in the assessment of the official, which seems to be shared between the Assistant project Manager of ASSP and M&E officer. Mr. Thapelo Otisitswe does appear to be dedicated to mechanization, with support from Mr. Kago Makgoa. This element of the allocation of responsibilities suggests some compromising of delivery and must be rationalized going forward, together with additional training that is evidently required on specialist machinery.

89. The range of machinery to be procured was reported to include furrow rippers, which were reported to be in favour due to the double operation of ripping and furrowing. The Mission infers that this reflects some degree of monitoring and evaluation of field activities, with some adaptation and on-going learning. This is laudable. The range of machinery is limited somewhat to rippers. In the interviews with mechanization officers, no clear line reference was drawn to the activities as documented in the AWPB. This is an indicator of limited capacity in project management, which must in principle translate from the overall project to the sub-component and activity level. In future it is recommended that the officers make continuous reference to the AWPB when reporting on progress. In addition, the lack of a detailed sub-component report on activities hampered progress assessment.

90. **The mission recommends the project allocates funds, estimated at US\$150,000** for purchase of planters, weed/ pest control sprayers, threshers and combine harvesters, and primary processing equipment as initiative to expand range of equipment demonstrated. The success of demonstrations and hands-on operation of soil turning equipment (rippers) under the sub-components Improved Rainfed Agricultural Practices and Mechanisation is **recommended** to continue and be strengthened by expanding the range of agricultural equipment used. This will improve the available information on the range and performance of mechanisation equipment suitable for local conditions and will enhance farmers' ability to make appropriate choices when purchasing machinery for different operations, starting from soil turning through to crop processing.

Agreed action	Responsibility	Agreed date
Subcomponent 1.1: Agricultural Mechanization		
1. Mechanisation Strategy – Appoint multi-disciplinary team to assist with technical capacity and fast-track the finalisation of the mechanisation strategy	Director Crop Production and Section Head mechanisation. Budget US\$100,000 Consultants	March 2018
2. Expand equipment range demonstrated– purchase planters, weed/ pest control sprayers, threshers and combine harvesters, and primary processing equipment to expand range of equipment demonstrated	ASSP Mechanisation, Section Head Mechanisation under DCP Budget US\$150,000	March 2018
3. Events/platforms to demonstrate agricultural equipment	ASSP Mechanisation Budget US\$10,000	March 2017
4. Training of Agricultural Mechanisation officers	Project Manager ASSP ASSP Mechanisation Officer Budget US\$50,000	March 2018
5. Develop standardised training materials		
6. Strengthen mechanisation and agronomy officers under the ASSP	Project Manager	October 2016

## **II. Subcomponent 1. 2: Improved Rain-fed Agricultural Practices – Moderately satisfactory**

91. *Subcomponent 1.2: Improved Rain-fed Practices* – The sub-component contributes to the improved agricultural production. The main activity and focus was on introduction and adoption of conservation agriculture.

92. A range of planned activities were undertaken during the first half of implementation in promoting CA. On-farm training on CA was undertaken for 730 farmers, out of a planned annual target of 5,000 farmers. It should however be noted that the agriculture season starts in November and, therefore, more demonstrations and trainings are expected to be undertaken during the October-April period. Soil testing was also undertaken for 10 farmers with CA demonstration plots, and 7 demonstrations were successfully conducted. The misinterpretation of the financing rule governing IFAD resources by PMT has also limited the extent of training and demonstrations; the misinterpretation has since been rectified.

93. The Project is implemented in all districts, sub-districts and EAs supported by ISPAAD. Whilst some CA activities were to be anchored to the proposed 15 ASCs, others were to be undertaken in EAs that are not within the operating radius of the ASCs, (generally regarded as being about 20-30 km). However, the Jwaneng ASC has a catchment area that expands to as far as 200km away. On the

94. Whilst there is training on-going on CA, there is need to develop training materials and implement structured training program for interested farmers on CA practices.

95. According to the ASSP AWPB 2016-17 of 8 April 2016, eleven (11) activities were planned under this sub-component. These activities were soil testing for project targeted famers (demonstration farmers), Conduct Demonstrations, Conduct Farm walks, Conduct field days, Conduct ASSP Technical Committee meetings, Conduct ASSP Technical Committee field visits, Produce targeted messages, Sensitization on Farmer Field Schools, On farm Training of farmers on CA, Conduct study tours on conservation agriculture and Procurement of Rain gauges. Various targets were set for the activities.

96. The Project is implemented in all districts, sub-districts and EAs supported by ISPAAD. Whilst some CA activities were to be anchored to the proposed 15 ASCs, others were to be undertaken in EAs that are not within the operating radius of the ASCs, (generally regarded as being about 20-30 km). However, the Jwaneng ASC has a catchment area that expands to as far as 200km away

97. Whilst there is training on-going on CA, there is need to develop training materials and implement structured training program for farmers on CA practices. The Mission **recommends** the collation, documentation and implementation of a clear and structured training program under ASSP, drawn from all elements of extension, to guide the training requirements at various levels for all activities under ASSP including on farm demonstrations, farm based plots for conservation agriculture and adaptive research.

98. The training programme must be developed with the mechanisation component, drawing out of the mechanisation strategy.

99. The Mission **recommends** the approval of the CA strategy by the delegated authority. Continue the focus on CA and allocate additional funds for training and build on lessons learnt. The current activities on improved agricultural practices focus on the tillage aspect of conservation agriculture, aiming to improve soil moisture capture and distribution through ripping of the soil. This is but on one practice in a suite of agronomic practices and operations that include soil cover improvement, and management of pests and diseases, as well as land and soil management, agro-forestry and use of less moisture demanding crops. The project should expand on to these other activities applying the lessons learnt in implementing conservation agriculture to these other activities.

100. Table 1 summarises the progress and some comments on this subcomponent. The subcomponent benefited from the drafting of a strategy.

Agreed action	Responsibility	Agreed date
Subcomponent 1.2: Improved Rain-fed Agricultural Practices		
1. Develop training materials, implement structured training program – on conservation agriculture and other CA activities like mulching	Project Manager ASSP Agronomy Officer Budget US20,000	March 2017
2. Approval of the CA strategy by the delegated authority	Project Steering committee Project Manager	October 2017

**Table 1: Progress on Subcomponent 1.2: Improved Rain-fed Agricultural Practices**

No	Activity Planned	Site	Target	Unit	Q1	Q2	Q3	Q4	Responsible	Rating of Progress	Comments on progress
1.2.1	Soil testing for project targeted famers (demonstration farmers)	27 Sub-districts	82	farmers	X	X			Agronomy Officer	Unsatisfactory	<ul style="list-style-type: none"> <li>The work is behind schedule</li> <li>7 of 27 kits purchased to date</li> <li>43 kits in tender for purchase</li> </ul>
1.2.2	Conduct Demonstrations	10 Districts	82	farmers		x	X	X	Agronomy Officer	Highly satisfactory	<ul style="list-style-type: none"> <li>540 demonstrations reported</li> </ul>
1.2.3	Conduct Farm walks	10 Districts	10	events			X	X	Agronomy Officer	Highly satisfactory	<ul style="list-style-type: none"> <li>Scheduled for Q3 and Q4 when the rainy season starts</li> <li>Some activity done</li> <li>ploughing, planting, weeding, pest control (farm walks to be conducted for these operations)</li> </ul>
1.2.4	Conduct field days	10 Districts	10	events			X	X	Agronomy Officer	Highly satisfactory	<ul style="list-style-type: none"> <li>Scheduled for Q3 and Q4 when the rainy season starts</li> <li>Some activity done under CA and ploughing</li> </ul>
1.2.5	Conduct ASSP Technical Committee meetings	MOADFS HQ	4	Meeting	X	X	X	X	Agronomy Officer	Satisfactory	
1.2.6	Conduct ASSP Technical Committee field visits	MOADFS HQ	1	field visit				X	Agronomy Officer	Satisfactory	
1.2.7	Produce targeted messages	National	1	Message		X			Agronomy Officer	Unsatisfactory	<ul style="list-style-type: none"> <li>No evidence of progress</li> </ul>
1.2.8	Sensitization on Farmer Field Schools	National	27	Schools	X	X	X	X	Agronomy Officer		<ul style="list-style-type: none"> <li>No clarity on what constitutes field schools</li> </ul>
1.2.9	On farm Training of farmers on CA	National	5000	farmers	X	X	X	X	Agronomy Officer	Unsatisfactory	<ul style="list-style-type: none"> <li>730 farmers, out of a planned annual target of 5,000 farmers</li> <li>This target does seem to be too high and may need to be revised</li> </ul>

No	Activity Planned	Site	Target	Unit	Q1	Q2	Q3	Q4	Responsible	Rating of Progress	Comments on progress
1.2.10	Conduct study tours on conservation agriculture	Regional	30	participants			X	X	Agronomy Officer	Unsatisfactory	<ul style="list-style-type: none"> <li>Study tour conducted to Zambia, and</li> <li>linkage with the Namibian Research centre noted</li> </ul>
1.2.11	Procurement of Rain gauges	Districts	82		X	X			Agronomy Officer	Unsatisfactory	<ul style="list-style-type: none"> <li>No evidence of progress</li> </ul>

*III. Subcomponent 1.3: Pilot Scheme for Wastewater Irrigation and other irrigation schemes – Performance is moderately unsatisfactory*

**Total Allocation: US\$390,000 + the Infield costs and production budget**

101. *Subcomponent 1.3: Pilot Scheme for Wastewater Irrigation* – The performance of this subcomponent is moderately *unsatisfactory*. The sub-component had a number of activities, summarized in Table 2.

102. The subcomponent focuses on the piloting of the development (design, construction and implementation of an innovative governance model for operation and maintenance) of a 29 ha irrigation scheme at Palapye. This is significantly behind schedule. The mission noted that after a lengthy discussion on the design and costs of the proposed scheme, a contract (value P7.5 million) for the construction of the scheme was awarded and signed on 19<sup>th</sup> August 2016, but the contractor is still to commence work.

103. *Contract management* - The Mission noted a number of concerns on the contract management issues on the pilot irrigation scheme. These include (a) that the contract documents had not fully and correctly compiled; (b) that in the absence of the correct contract documents, an incorrect **supplier agreement** had been signed as the main contract document; (c) that the appointed Engineer, Stephenson and Associates was not involved with the tendering and award of the contract; (d) that there had been delays in site handover to contractor, past the standard 28 days after letter of acceptance, (e) that even in the absence of the correct contract documents, expenditure was already being incurred on the contract and (f) lack of document control on the contract.

104. The MoADFS appointed engineer, Stephenson Associates, has requested the contractor to provide required insurance documents and for government to provide the contract annexes before handing over site to the contractor. During the Mission, the contractor has since submitted the required insurance and the MoADFS was putting together a complete contractor dossier for the engineer. Handing over of the site, planned for 10 October 2016, had been postponed to the week commencing 17 October 2016.

105. The Mission noted that above complications were potential risks to the scheme construction, and could result in a disputed contract. The specifications, Bill of Quantity, special tender conditions, tender clarifications, contract negotiation correspondence and minutes had not been compiled into a contract document. The Contractor had delayed to provide the updated programme of works and insurances. The mission noted that document control is an area that needs particular attention. In respect of the pilot scheme, apart from the inherent risk of contract management, financial controls on the contract, this element in and of itself requires major attention. The scheme is a pilot. Key questions would arise as to how the project would be replicated elsewhere if there are no documents to support lessons learnt. The Mission **recommended** the immediate correction and redress of the omissions to the project team and maintain correct lines of communication with the Engineer and contractor as below.



106. *Wastewater for irrigation* - There has been a notable increase in the use of wastewater for crop irrigation, especially in arid and semi-arid areas. Controlled wastewater reuse has been practised in many western countries on sewerage farms, particularly for livestock farming. The value of wastewater both as a water resource and source of nutrients is recognised. However, the possible hazards to health and the environment must be recognised and mitigated sufficiently. This requires knowledge and experience in wastewater treatment by the practitioners working on these schemes. The mission notes that the pilot scheme is one of many in the pipeline for Botswana. Special attention is required on education and training in this element of water source.

107. The challenges identified in contract management reflect a lack of capacity on project and contracts management. The Mission notes that the capacity of the Project to effectively manage the contracts of the engineer and the contractor needs strengthening. The Mission **recommended** that the project organises for the training of MoADFS engineers on, among others, irrigation system design, project and contract management and construction supervision and water quality

management. The Project should assist the MoADFS engineering unit to acquire appropriate and relevant design and planning hardware and software to facilitate the design of engineering works.

108. *Scheme Operation and Management Model* – The Mission is concerned that the scheme construction is about to begin without clarity on the governance model that will be piloted. Options for governance models were discussed with farmers and government officials during the last 12 months, but no agreement has been reached to date. The Mission **recommended** that the MoADFS and the selected farmers should agree on a governance and operation model for the scheme. The model will include the formation and registration of a Water Users Organisation to manage the common scheme infrastructure, potential role of a water service provider (e.g. Water Utilities Corporation (WUC)) in scheme operation, payment of operation and maintenance charges (water charges, pumps and pipeline maintenance, electricity costs, road and fence maintenance, among others).

109. The mission reviewed and noted that the detailed study conducted by IFAD Irrigation and Infrastructure Specialist should be the take-off point on the recommendation for the governance model. An allocation of funding around **US\$10, 000 for a workshop to finalise the discussions is proposed**. Although this scheme would be considered a pilot for ASSP, there are other existing schemes like Dikabeya and Glen Valley. The lessons from all these schemes on the facets of investigations, financing, technical design, costing, implementation, governance should be brought to bear on the pilot scheme. The Agricultural Economics Section is recommended to be fully involved in the feasibility studies for the schemes.

110. *Financing of Infield Development by Farmers* – Each farmer has been allocated a (1) one hectare plot for horticultural production under irrigation. The farmers interviewed at the scheme during the Mission had aspirations to start operations as soon as the scheme construction is completed. The lack of clarity on financing of infield works and 1<sup>st</sup> year production presents a risk that the scheme may not take off at the same time if farmers secure funding at different times. This would present many challenges in respect of operating the scheme which include among others; (a) if too farmers are able to secure finance, the critical mass to take off is not achieved, (b) the start and end of the defects liability period for the contractor will not clear, (c ) the identity of the entity to handover the scheme to may not be clear, (d) the apportionment of budgeted for costs for electricity during the 1<sup>st</sup> year of operation would be complicated (e) the testing and commissioning may not be completed to the satisfaction of entire scheme operation, (f) farmers' morale would be lowered.

111. The Mission notes that the Project has no clear understanding of how the farmers will finance: a) the purchase and installation of the irrigation system on the plots; and b) the procurement of crop production inputs. The Mission recommends that the Project assists the Water Users Organisation to prepare a business plan for the scheme as a whole, with a particular focus on identifying cash-flow requirements at scheme and individual farmer level. The plan will identify potential sources of funding, such as government run programmes (ISPAAD, Women's fund, Youth fund), Citizen Entrepreneurial Development Agency (CEDA) or commercial banks.

112. The potential role for government to guarantee credit financing for farmers for the infield irrigation system will also be analysed. One option is for government to put in place a credit guarantee facility to leverage as collateral for the smallholder farmers to access finance for the infield works and inputs for production during the 1st year of operation. This approach will allow for the full development of the scheme from the onset to reduce delayed production, as is common with other irrigation schemes, such as Dikabeya (30% utilisation) and Glenvalley.

113. The mission recommends that scheme infield works must be completed to a high standard to achieve uniformity and efficiency in operation. This would be achieved by the ASSP and MoADFS providing a shortlist of quality contractors that the farmers may approach for the design and construction of the infield works. There is indeed a risk that with farmers sourcing own funding, they could approach any supplier of material and construct poor quality infield works that would compromise the entire scheme. This aspect must be managed properly. The ASSP project engineers must draw up the infield design criteria and cost to input into the infield works.

**114.** The scheme will be constructed over the next 6 months. The defects liability and production period will run for 12 months. The project requires **extension** in order to serve and implement the defects liability period and production period.

115. *Farmer selection and training* - The Mission recognises the strides made on training the selected farmers in group dynamics, horticultural production, among others. However, it is a priority

that this training be matched and be implemented hand-in-hand with an appropriate governance model. This is key as the scheme is a pilot to be replicated at other sites.

116. *Quality of Treated Water from the Wastewater Plant* – Works to assist in the improvement of the water quality out of the Waste Water Treatment Works (WWTW) is behind schedule. The WUC is currently preparing the invitation to tender for these works.

117. *Scheme water treatment works* – The treatment works component of the irrigation scheme appears to have been underestimated in the design review. During the mission, the Contractor brought to the attention of the Engineer a likely cost magnitude, which would escalate the scheme by about **US\$500,000**. The Mission **recommended** to the ASSP PMT to take note of the likely cost escalation and to take appropriate measure under best international practices of contract management to mitigate this risk.

118. *Procurement Risks for noting and abatement* – In the assessment of the contract documents, it was noted that *circular no 6 of 2015* from Public Procurement and Asset Disposal Board (PPADB) exempts “Citizen Contractors” from requirement to provide performance bonds on contracts. Further *circular No.1 of 2016* eliminates bid bond or tender security, Trading license, certificate of site visit, proof of purchase of tender documents, Certificate of company registration, record of addenda, Form of intent to provide parent guarantee, value of project undertaken by bidder and provision of samples if so required. Against best international practice, such exemptions constitute particular risks for effective and efficient delivery on contracts.

119. *Scaling-up Horticultural Production under Water User Organisations* – The Mission recommends that the Project finances the development of feasibility and design studies for new horticultural development schemes. An initial list of potential schemes that can be studied and developed further are:

- Leshibitse Production Cluster ground water – Conduct a feasibility study for potential development of about 540 hectare production area;
- Lobatse WWTW irrigation scheme – Conduct a feasibility study for the development of about 71 ha, in possible two phases – (Phase 1: 41ha and Phase 2: 30 ha);
- Selebi Pikwe WWTW Irrigation scheme – Conduct feasibility study for the development of 160 ha horticultural production area; and
- Establishment and development of a Water Users Organisation at Dikabeya Irrigation Scheme. This will include a socio-economic study of the scheme and the main constraints affecting sustainability.

120. The mission visited a number of other potential projects to learn and position the possible replication of the lessons from the Pilot Scheme for Wastewater Irrigation at other irrigation schemes. The visits were to the Leshibitse Production Cluster on 06<sup>th</sup> October 2016, Dikabeya Irrigation Scheme on the same date, and Serowe Wastewater scheme, which is under construction, on the 07<sup>th</sup> October 2016. Out of these visits, a list of possible schemes was raised, for potential influence to Phase 2 of the ASSP.

121. The draft terms of reference for the feasibility studies to scale up horticultural production are presented in Attachment 2.

Agreed action	Responsibility	Agreed date
Sub-Component 1.3: Pilot Scheme for Smallholder Wastewater Irrigation		
1. Put in place a GOB guarantee to leverage collateral for farmers to finance infield works and production budget during the 1st year of operation – to mitigate the risk of staggered completion and delayed production.	Project Steering Committee ASSP Project Manager Budget US\$270,000	November 2016
2. Adopt irrigation governance model as proposed by IFAD Infrastructure Lead Specialist	ASSP Steering Committee	November 2016
3. Prepare and sign the contract to accepted guidelines and standard, and handover site to contractor	Project Manager ASSP Irrigation Engineer	October 2016
4. Cost of water treatment works – Employer and Engineer	Project Manager ASSP	October 2016

Agreed action	Responsibility	Agreed date
to discuss compliance to tendered price. Implement contract management to manage risk of price escalation on treatment works, according to international best practice	Irrigation Engineer, Project Engineer Budget US\$40,000	
5. Train Irrigation Engineers – on Irrigation System Design, Project and Contract Management Skills, Water quality management, acquire relevant design and planning software (Modelmaker, AutoCAD, CROPWAT/SAPWAT)	Project Manager ASSP Irrigation Engineer, Project Engineer Budget US\$50,000	March 2018
6. Draft contract and award contract to des-sludge Palapye WWTW	Water Utilities Corporation ASSP Project Manager Irrigation Engineer Budget US\$100,00	March 2017
7. Set –up water quality monitoring – benchmark or background groundwater quality	University of Botswana, MOADFS and ASSP Budget US\$50,000	December 2017
8. Preparatory studies to prepare to up-scale the lessons learnt from Palapye to other irrigation schemes <ul style="list-style-type: none"> <li>• Leshibitse Production Cluster ground water. Conduct a feasibility study US\$200,000 – supports project extension. 543 hectare production area.</li> <li>• Lobatse WWTW grey water – (41 +30 ha) – Pre-feasibility study – US\$20,000</li> <li>• Selebi Pikwe WWTW grey water – (160 ha) – Pre-feasibility study – US\$20,000</li> <li>• Use of grey water in Tonota – Pre-feasibility study – US\$20,000</li> </ul>	Project Manager ASSP Irrigation Engineer Budget US\$260,000	March 2017

**Table 2: Progress on activities on the Pilot Scheme for Wastewater Irrigation and other irrigation schemes**

No	Activity Planned	Site	Target	Unit	Q1	Q2	Q3	Q4	Responsible	Comments on progress
1.3.1	Implement operational and management model for water users association	Palapye	1	Consultancy		X	X		Irrigation Officer	This is significantly behind schedule
1.3.2	Irrigation Scheme Construction	Palapye	1	Construction	X	X			Irrigation officer	This is significantly behind schedule
1.3.3	De-sludging of WUC ponds	Palapye		Construction		X			Irrigation officer	This is significantly behind schedule
1.3.4	Water quality monitoring	Palapye		Construction		X			Irrigation officer	This is significantly behind schedule
1.3.5	Biofilter Feed Pump	Palapye		Construction			X		Irrigation officer	This is significantly behind schedule
1.3.6	1 ha demonstration plot equipment	Palapye		Construction		X			Irrigation officer	This is significantly behind schedule
1.3.7	Electrification distribution	Palapye		Construction	X				Irrigation officer	This is significantly behind schedule
1.3.8	Irrigation strategy	Palapye		Construction					Irrigation officer	This is significantly behind schedule
1.3.9	Business Plan, marketing and group dynamics	Palapye	4	trainings	X	X	X		Irrigation Officer	
1.3.10	Training of water users association members on waste water usage	Palapye	1	training		X			Irrigation Officer	
1.3.11	Monitor water quality compliance	Local	Fortnightly	tests	X	X	X	X	Irrigation Officer	This is significantly behind schedule
1.3.12	Establish database for water quality	Palapye	12	Monthly tests	X	X	X	X	Irrigation Officer	This is significantly behind schedule
1.3.13	Collect Production data	Palapye	4	quarterly			X	X	Irrigation Officer	This is significantly behind schedule
1.3.14	Benchmarking Tour on Water Users Association Management	Swaziland	2	Tour	X	X	X		Irrigation Officer	This is significantly behind schedule

## **Attachment 1: Terms of reference for the development of Mechanisation Strategy**

- i. Coordinate, advise and instruct the consultants on their respective tasks based on the methodology adopted for the project;
- ii. Organize workshops and meetings at the various stages of the project;
- iii. Write the main report and supervise and provide inputs for the specialist reports;
- iv. Organize the dissemination of the results and outputs of the strategy formulation.

### **Role of consultants – cross cutting**

- i. Collection and analysis of information on the particular discipline based on an established methodology.
- ii. Develop the methodology for conducting the strategy formulation;
- iii. Participation in workshops organized at the different phases of the project.
- iv. Advise the Ministry of Agriculture on the process and technical elements of mechanisation strategy formulation
- v. Analyse and report on the information collected.

### **Agricultural Economist**

- i. Collate information on the national agricultural development plan and other relevant policy documents and legislative frameworks
- ii. Review and analyse the collated documents
- iii. Conduct SWOT analysis

### **Agronomist**

- i. Conduct an appraisal of the crop production practices and crop processing operations in Botswana
- ii. Consult relevant senior officials in GOB, including but not limited Ministry of Agriculture, Finance, economics, Water and Sanitation, Public Works
- iii. Conduct SWOT/ GAP analysis
- iv. Identify and consult relevant stakeholders

### **Mechanisation specialist**

- i. Review the latest draft strategy for agricultural mechanisation
- ii. Collate and review the comments provided by FAO Botswana
- iii. Identify and consult relevant stakeholders
- iv. Consult relevant senior officials in GOB, including but not limited Ministry of Agriculture, Finance, economics, Water and Sanitation, Public Works

### **Livestock specialist**

- i. Conduct an appraisal of the livestock production practices and livestock processing operations in Botswana
- ii. Consult relevant senior officials in GOB, including but not limited Ministry of Agriculture, Finance, economics, Water and Sanitation, Public Works
- iii. Identify and consult relevant stakeholders

### **Deliverables**

Agricultural mechanisation strategy  
Action plan  
Draft work plan

## **Attachment 2: Terms of Reference for Feasibility Studies to Upscale Horticultural Production**

The intention of the engineering set of tasks is to undertake investigations, formulate and analyse options to develop the Irrigation Schemes. The analysis should consider potential options for the abstraction of water from the sources and irrigation of the scheme, leading to the preparation of a feasibility report for the Project.

### **A. Objective and Scope of the Consultancy**

The Feasibility Study has the following main objectives:

1. To provide an assessment of the economic, financial, technical, social and environmental viability of identified irrigation schemes.
2. An assessment of current situation of marketing arrangements, crop production and the infrastructure and proposed options, if any, for improvement of each of area, as well as a cost benefits analysis,
3. To prepare a Feasibility Report with Annexes for each proposed irrigation scheme,
4. To conduct a Stakeholders Meeting to disclose project's objectives and approach and assess buyers and farmer's attitude and willingness to act as partners for the sustainability of the relationship,

### **B. Crop Marketing Arrangements**

The study will review the market opportunities for the selected commodity crops. This will include the possibility to enter into an off-take contractual relationship with identified buyers for selected commodity crops.

The analysis will consider the following:

1. Total production volumes to be met by the farmers to satisfy demand from identified buyers in order to make the farmer-buyer relationship sustainable.
2. In collaboration with the economist, determine the net annual benefits that farmers will earn from marketing the crops. Suggest ways that this earning can be optimised.
3. After consultations with farmers and identified buyers provide key principles to be included in any possible off-take agreement or MoU.

The Study shall examine all proposed crop on the basis of their market suitability for smallholder production in terms of buyers' quantity and quality requirements and specifications (and the ability of producers to meet these), perishability, transport, storage, handling and other considerations.

The need for improved marketing infrastructure in the project area should be assessed with particular reference to the need for additional feeder roads and improved access, delivery points and stores, transport facilities, communications with grower groups and strengthening of administration and institutional arrangements for crop marketing.

### **C. Agriculture Development**

The study shall:

1. Investigate all possibilities of establishing an agricultural development model that ensures effective s participation in a commercially viable irrigation scheme for the selected crops and food crops. A combination of data from a socio-economic survey, agro-climate conditions, soil

suitability, and market access and farmers experience will provide some indication of the feasibility of smallholders to grow the required crops competitively.

2. Propose an agricultural development model that specifies crops, their crop water requirements and field irrigation water demands, farm size and number of beneficiaries, agricultural support and agricultural credit.
3. Analyse climatic data for the area and assess water requirements of crops to be irrigated in the project area. Crop water requirements shall be calculated using FAO's CROPWAT 8.0 software or other software as shall be approved.
4. Carry out field investigations and establish existing land use practices and limitations of land resources in the identified schemes for the proposed commodity crops.

#### **D. Irrigation Infrastructure Engineering**

The study will

1. Assess the water supply requirements for the acquisition and distribution of water to the farms in the selected irrigation systems.
2. Determine the infrastructure requirements and prepare designs, bill of quantities and provide cost estimates of the selected infrastructure.
3. The water distribution method will be selected from options that are technically feasible, after considering operation and management requirements, with the aim of selecting the option with the least life cycle costs. An option for modernising irrigation systems, for enhanced water efficiency and improved crop production shall be included.
4. Using the hydrological, topographical and geotechnical data preliminary design options shall be prepared for the irrigation systems.
5. Drawings shall be produced to show general arrangements of the major structures as well as quantities cost estimates for different major structures.
6. The study shall define the boundaries of irrigation fields suited for the selected value chain crops.

Field, irrigation and drainage layouts, at no more than 1:10000 will be produced for each irrigation command module taking into account the irrigation system and field size.

#### **E. Environmental and Social Impact Assessment**

##### **Environmental**

1. Potential impacts of the proposed project, distinguishing between significant positive and negative, direct and indirect, intermediate and long-term impacts.
2. The study shall also identify those impacts that are likely to be unavoidable or irreversible. The study shall characterize the extent and quality of available data, highlighting significant information deficiencies and proposing extra work to be done to collect reliable data.

The environmental and social impact assessment shall be carried out in accordance with the laws of Botswana.

## **Social Dimensions**

The study shall:

1. Conduct an agro-socio-economic baseline sample survey, to include current cropping patterns, that is sufficiently representative and detailed to permit evaluation of project impact at a later stage.
2. Prepare appropriate survey and collection of the socio-economic baseline data on the project area, including income level, social vulnerability, access to services, food, energy and water security, employment opportunities. This should pay particular attention to the poorest of the poor in the beneficiary communities, and social network systems that may be enhanced (or threatened) by the project, and which provide special protection for these groups;
3. Analyse existing tenure arrangements and using the soils map, estimate the possible number of households owning/claiming land on irrigated land suitable for growing the identified crops.
4. Investigate the impact of the project on women, the youth and the poorer segment of the project area communities.
5. Provide expected positive and negative socio-economic impacts of each alternative of the Project and outline their magnitude, taking into account the sustainability of the irrigation scheme;
6. Community mobilisation and development issues including opportunities to address the needs of women, the youth and the vulnerable;
7. Community organisation - structure, skills and skill gaps (financial, agronomy, technical), including the irrigation/ water committee (to be responsible for the operation and maintenance) and traditional leaders; Community preparedness and willingness to support the operation and maintenance of the scheme;
8. Availability of external support (NGOs, traditional leaders / Local government);

### **F. Other Infrastructure Requirements**

The study shall:

1. Determine the nature of requirements for other infrastructure, (transport, storage) for the sustainable production and marketing of selected crops.
2. Propose how provision of above should be arranged, with preliminary costing for all necessary items such as roads and associated works, and telephone transmission lines.
3. Determine the funding requirement for this development and indicative sources for such funding.

### **G. Institutional Framework for the Agriculture and Irrigation Water Management**

1. The study shall provide preliminary advice on appropriate organizational arrangements to be put in place for agriculture, infrastructure and water management, the farmers' organisation, extension and training services to ensure that early and adequate training, on-going extension, and liaison take place on the part of all concerned.

2. The legal, regulatory and farmer choice options for legalization of groupings of smallholders for commercialised agriculture purposes and new entities for irrigation water management should be analysed.

#### **H. Economic and Financial Analysis Cost Recovery and Water Pricing**

1. The study will examine the scope for cost recovery from beneficiaries through water charges for both the capital and recurrent costs. The study should include a review of the appropriate experiences and proposals being developed in Botswana.
2. Prepare financial and economic budget analyses for all targeted outputs. Specific attention should be given to estimating the farmers' level of benefits, ability to pay for inputs for crop production and irrigation water fees.
3. The economic and financial analysis shall specifically include the following:
  - a. Calculation of net project benefits arising from incremental agricultural production at both farm and project level after deduction of benefits foregone by participants.
  - b. Estimate the capital and recurrent costs (O&M) of the basic infrastructure, the water distribution system, land development, related project infrastructure, environmental protection measures and project institutional arrangements.
  - c. Develop a project cash flow and the calculation of an economic rate of return and net present value.
  - d. Carry out a sensitivity analysis to changes in the basic project parameters and calculation of sensitivity indicators.
  - e. Assessment of project risks which could affect the attainment of project objectives and have a bearing on sustainability.
4. The financial viability to each of the participating farmers will determine the success of the project. The study shall perform a financial analysis, which will examine the net annual income to the participating farmers.
5. The financial analysis should develop incremental costs and benefits, cash flows and calculate financial rates of return and net present values using the financial process. The study will also undertake sensitivity and risk analysis to changes in key parameters.
6. Cost and benefit estimates
  - a. All the criteria and assumptions to be adopted for cost and benefit estimation should be mentioned and clearly explained. These will include estimates of crop yields, crop prices, inputs required, water fees payable, transport costs among others.
7. Financing Plan
  - a. Options for the provision of farmer credit for the on-farm irrigation infrastructure development, agricultural development component and for day to day farming operations (working capital) shall be examined.
8. The study will undertake an in-depth analysis of the potential for farmers to receive credit from commercial banks to finance on-farm irrigation and other infrastructure and for seasonal working capital.

9. The study will undertake an in depth review of the options available for the financing of the operation and maintenance costs of the bulk infrastructure for water supply to field edge.
10. The Study shall submit an indicative financial plan showing sources of funds (donor, loan finance, private sector participation, payment by beneficiaries) for the feasibility study and each development option for each.

#### **I. Team Composition**

A team of international experts would be required, assisted with support technical staff. It is envisaged that about 3 to 6 person-month per scheme of national experts and technical staff, depending on the size of each scheme, would be required for this assignment over a period of two months. The proposed team composition is presented below:

- Irrigation/Civil Engineer: Team Leader
- Economist/Agro-economist/Financial Analyst
- Hydrologist/Water Resources Expert
- Geo-hydrologist
- Agricultural/Agronomist Specialist
- Agricultural marketing specialist
- Socio-economist

Specific ToRs for each team member are provided below.

#### **J. Economist/Agro-economist – Team Leader**

The economist will be responsible for

1. The economic evaluation of each proposed irrigation scheme which will include comparing the economic viability of schemes. In collaboration with the Team leader, he will assess all potential benefits and costs for each proposed irrigation scheme. He/she will also provide an overview of the general methodology and assumptions used, with an indication of the potential range of benefits and costs. With the assistance of the Agronomist and the Team Leader he will produce an economic evaluation of each proposed irrigation scheme on the basis of:
2. Anticipated Costs and Benefits. Identification of the costs and benefits that would arise “with” the proposed investment and the situation as it would be “without” the investment. In this section therefore the costs and benefits of a proposed infrastructure investment must be clearly identified and valued, with the underlying assumptions. This includes estimates of the investment (capital) and recurrent (operation and maintenance) costs using inputs from all members of the team.
3. Financial Analyses. Based on the identified and valued proposed investment costs and benefits and market opportunities assessment the financial analyses should be carried out and the Economic Internal Rate of Return (EIRR) determined. All the assumptions used for the calculations must be clearly reported in the spreadsheet.

#### **K. Irrigation /Civil Engineer**

1. Investigate and outline technically feasible options for the abstraction of required water from the WWTW or Groundwater;
2. Carryout geotechnical investigations (by excavated trial pits) as required for the design of the preferred option for the abstraction of water
3. Carry out Geo-hydrological analysis of groundwater;
4. Specify the technical design requirements of the preferred option
5. Infield Irrigation Systems

- a. Review and analyse irrigation systems in common use in the region and select the most appropriate one, consistent with proposed crop type and available irrigation soils, taking into account sustainability and water use efficiency
- b. Examine the topography of the site, and select the most suitable location for night storage, taking into account technical, cost and environmental factors;
- c. Undertake the sizing and engineering design of the required night storage, based on the irrigation scheduling as provided by the agronomist
- d. Specify the requirements for the selected infield irrigation systems, including primary, secondary and tertiary distribution facilities, as necessary for the irrigation scheduling provided by the agronomist.

#### **L. Hydrologists/ Water Resources Management Specialist/ Geo-hydrologist**

1. The Consultant will conduct a review of existing data and consultant's own assumptions and methodology assess the water supply availability for shortlisted schemes and how it fits into the water management of each scheme. Specifically, the analysis will be based on the following aspects:
2. Water Supply Analysis: The consultant will conduct on the basis of available data a simple water supply analysis, which includes historical flows from WWTW or groundwater
3. An analysis of surface water supply from various sources/catchments. Available hydrological /geo-hydrological data shall be collected and their quality assessed. This would lead to an assessment of the available water resources for each irrigation scheme. Reliable flows would be estimated month by month particularly during dry season (May to October) as well as frequencies of occurrence or inter-annual variability;
4. Review the water rights or priorities throughout the year of the various water sources which are supposed to be used for irrigation and establish whether those rights might hinder the water supply to the proposed irrigation schemes. Particularly water rights or priorities for domestic water supply or for hydropower;
5. Water Demand Analysis. Undertake in collaboration with the Agronomist, a water demand assessment based on monthly and peak crop water requirements for the current cropping patterns (without project situation) and for an expected future cropping pattern (with project situation) that includes crop intensification and probable diversification.
6. In collaboration with the other team members, develop through two or three various scenarios of future cropping patterns determine the overall water balance of the system and define possible potential irrigable area that would be considered for rehabilitation.

#### **M. Agricultural Development Expert/Agronomist**

In order to assess the economic and social feasibility of irrigated agriculture in the proposed project areas, The Consultants shall, with the support of field technicians/surveyors, carry out rapid surveys with focus groups. Based on these, The Consultant shall report:

1. on the present agricultural situation in the total command area, including a preliminary overview of present land use, land tenure, farm characteristics, labour availability; agricultural practices, inputs and yields; sources of income, farm equipment, access to credit;
2. on prospects for development with irrigation, including: farmers' interest in irrigation, willingness to pay operation and maintenance costs; intentions to grow high-value crops and adopt new technologies, taking advantage of irrigation; awareness of available technologies and of markets; plans for acquiring and financing on-farm irrigation equipment; and

3. on the impact of irrigation on farm income, and on major constraints to such developments, as well as on the felt needs for support
4. Develop farm models shall and discuss with farmers to represent the present situation and future developments, as a basis for the financial and economic analysis at the scheme level. The number of crop and farm models should be limited, so as to keep the analysis relatively simple.
5. collect information on current cropping patterns in the command areas and make recommendations on the most suitable future development of it once water supply during peak season is guaranteed and calculate crop water requirements;
6. provide an estimate of the total water required for irrigation based on the proposed cropping pattern and the irrigation system;
7. assist the Hydrologist in the elaboration of scheme water balance, and
8. assist the Economist in the production of crop models for use in the evaluation estimate crop budgets as an input to the financial and economic evaluation.
9. Investigate all possibilities to establish an agricultural development model that ensures effective smallholder participation, and an improved agricultural system that is suitable, flexible, viable and affordable to smallholder farmers;
10. Liaise with the technical assessment team to establish the optimal size of land for the Project in light of the amount of economically available irrigable land
11. Analyse soil and climate-related data for the area, and assess the water requirements of the crops to be irrigated in the project area. Crop water requirements shall be calculated using FAO's CROPWAT 8.0 software, or other software as shall be approve.

**N. Agricultural marketing specialist**

**O. Initial Environmental and Social Scoping Exercise – EIA Expert, Sociologist**

**P. Additional Expertise**

Depending on the specificities of each irrigation schemes additional expertise may be needed on other aspects such as hydro-mechanics, civil engineering, financial analysis, etc. The Consultant will present in his technical and financial offers justifications for the inclusion of these experts and their terms of reference.

The team composition is indicative and the Consultant will propose for each scheme a combination of required experts, depending on the specificities and the scope of work, who will have the experience and capacity to fulfil the ToRs requirements.

## **Annex 3: Technical Report on Component 2 – Enabling Environment for Smallholder Agriculture**

1. **Component 2: Enabling Environment for Smallholder Agriculture** – The component aims at: a) creating a sustainable system of incentives and local institutions to support the smallholder sub-sector; b) align the relevant institutional framework and development interventions to ensure better penetration of services to targeted beneficiaries; c) ensuring that farmers and farmer organisations have the capacity to benefit from improved service delivery, including a range of services to be provided through the ASCs and the extension system in general, which will complement and improve the effectiveness of the ISPAAD programme. This component is rated *moderately satisfactory*.

*122. Subcomponent 2.1: Improved Delivery of Extension Services* – This subcomponent focuses on the provision of:

- a) *Training of Extension Officers* – Training for 100 extension staff on Conservation Agriculture (CA), has proven useful, and they are now passing on those skills to their colleagues and farmers in their respective districts. Whilst the CA trainings have been taking place, it was decided to delay the Farmer Field Schools training, so as to consolidate and embed the CA approach amongst extension officers and farmers. As per the ASSP 2016-17 AWPB, training of identified beneficiaries so as they can participate in the pilot Scheme for Small holder Waste water Irrigation, has started and is still ongoing. It is targeted to be completed before the financial year's conclusion. To this end, the mission visited a beneficiary<sup>4</sup> in the Central district, and her six hectare irrigation smallholder farm was working exceeding well, and she was in fact in the midst of expanding the farm by another two hectares. She expressed that the extension support that she was receiving from the Extension Officers and the PMT was very useful; however she requested additional training in business management skills and agricultural product marketing and better more responsive access to and financial support. The computer skills training for 25 extension staff is still ongoing, designed to assist extension officers collect and record data, prepare timely reports and to disseminate ASSP information on public platforms such as the internet, radio, television and Facebook in Botswana and internationally. The MoADFS I.T. department has recorded thus far in 2016 some 30,000 Ministry internet web (which hosts the ASSP portal) visits, whilst the ASSP Facebook page has had some 26,000 visits. The procured computer equipment is being utilised at the PMT offices, as well as in the district offices.
- b) *Conservation Agriculture (CA) Strategy* – The CA Strategy was finalised and completed by the PMT in 2016<sup>5</sup> (a copy is presented here as Attachment 1) for up-scaling CA in all districts of Botswana. The CA is an adaptive strategy, which the ASSP PMT – with support from IFAD – has observed as successfully being implemented in African countries such as Kenya and Zambia. Naturally, the completed CA Strategy for Botswana was adapted for local climatic and agricultural conditions. The CA Strategy identifies the following critical pillars for successful implementation in the Botswana climatic and agricultural scenario:
- Improvement of tillage through the use of adaptive techniques; thus:
    - Decrease in required labour time; and
    - Decrease in mechanised or draught animal requirements for tillage (thus realising input costs such as fuel and animal feed);
    - Reduced and more efficient water usage.
  - Tilling and planting techniques lead to:
    - Improved soil fertility and thus productivity; and
    - Agricultural inputs costs are reduced.
  - CA techniques further promote on-farm cropping pattern diversification for smallholder farmers, this can lead to:
    - Increased soil fertility;
    - Increased yields;
    - Stability of yields; and
    - Increased net farm income.

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4 The Central district beneficiary the mission visited is Mrs July.

5 ASSP PMT: CA Strategy, Final 2016

- A holistic and integrated smallholder farming system that has an end result of ensuring:
    - The stability in production and yields; and
    - An integrated CA farming system that is functioning smoothly.
- c) The PMT has identified strategic stakeholders with whom they plan to interact with in the implantation of the CA strategy on a national level. So far, there are 19 of these strategic partners ranging from GoB Ministries and there departments, to farm machinery manufacturers, learning institutions, development agencies, farmers associations, etc. (the full list is outlined in the CA Strategy Final Document attached). Without these collaborative partnerships, the successful implementation of the CA strategy could be compromised. To this end, the PMT is now in the preparatory phase of undertaking detailed consultative processes with key stakeholders, which will lead to the CA strategy being transformed into an *Action Plan for CA Implementation in Botswana*.
- d) Discussions held during this mission with ASSP PMT members and extension officials in the districts confirmed a clear understanding of the following objectives of CA for smallholder farmers participating in the ASSP. These objects are as follows:
- To increase average crop yields from 200kg/ha to 1,000kg/ha;
  - To reduce production costs and maximize returns;
  - To conserve and enhance biodiversity; and
  - To enhance good crop production practices.
- e) Further, smallholder farmers consulted during this mission, who had had the opportunity of being exposed to CA approaches during benchmarking tours to Zambia and Kenya, and had started implement these techniques back home in their districts, reported improved and more efficient - in terms of time and costs - farming production process; as well as increased crop yields.
- f) *Purchase of equipment (motor vehicles) for district agricultural offices* – The PMT had planned to purchase 3 motor vehicles in the period since the last Implementation Support Mission. However, after aligning and assimilating the GoB procurement challenges, the PMT was able to purchase 4 motor vehicles; the additional vehicle was purchased from price competitive savings from the planned budget.
123. *Subcomponent 2.2: Agricultural Service Centres (ASCs)* – This subcomponent focuses on constructing and equipping ASCs and providing a full range of services farmers need to undertake farming as a business, and compete effectively and profitably in a market economy. Progress made is highlighted below:
- a) The last Implementation Support Mission (29<sup>th</sup> November – 9<sup>th</sup> December 2015) concluded that three ASCs would be constructed and commissioned in 2016. Procurement challenges have meant that, of the three, none of them have been completed, and only one is close to commissioning. Further, the three planned centres have been hampered by challenges relating to construction, supervision and procurement; they are significantly behind schedule.
- b) The Botswana Agricultural Marketing Board (BAMB) is operating the ASC at Jwaneng, and this Mission confirmed that the centre is providing the services that it had been designed for. Further, the uptake from the farmers in the District and surrounding areas illustrated effective utilisation of the services offered, as witnessed by the Mission. The ASC manager provided anecdotal data on use and demands patterns of the farmers in the district. Although this detailed data report was promised, it is still outstanding, and thus this technical annexure cannot report or confirm the actual demand for services and use patterns by farmers of this ASC.
- c) The Jwaneng ASC is run well by its manager and team; coordinating their activities with the district extension officers as well as adequate support from the PMT in Gaborone. Planning has been clearly undertaken, and they are ready with technical support, machinery and agricultural inputs for the upcoming planting season. However, this particular ASC, although staffed with nine people, they believe that they can easily double that to adequately service the farming customers on a daily basis, at the ASC and on the farm.

- d) However, such an increase in the staffing complement of the Jwaneng ASC needs to be carefully reviewed and analysed before undertaking any kind of staffing ramp up. Indeed, after rigorous human resource analysis, vis-à-vis, actual daily tasks at hand, the technical requirements for these tasks, as well as the current skills set of the existing staff; it could be concluded no additional staff are required but rather a redrafting of job descriptions and reallocation of daily tasks/responsibilities.
- e) Clearly from the use and the services being offered to the farming community by the Jwaneng ASC, the ASSP PMT needs to work very closely with their GoB counterparts, service providers/contractors to unblock the sluggish procurement process for the non-tendered ASCs, and increased technical supervision of those currently being constructed. However, unless the ASSP is extended, it is unlikely that all three ASCs to be constructed as agreed from the last Implementation Support Mission (29<sup>th</sup> November – 9<sup>th</sup> December 2015) will be completed before the project closes. The demonstrated use of and support provided to the farming community in the entire Southern District, the Jwaneng ASC provides an effective motivation for consideration of the extension of this ASSP beyond its current scheduled closure date.

124. *Subcomponent 2.3: Institutional Strengthening* – A draft Institutional Strengthening Strategic Plan<sup>6</sup> has been completed and needs to be discussed by all stakeholders before being implemented. This strategy will endeavour to systematically plan and implement institutional strengthening within the ASSP, MoADFS, at district level and beneficiary smallholder farmers.

- a) The key objectives are captured below, but are not limited to these, as further or revised objectives may come out of the workshoping of this draft strategic plan amongst the stakeholders and target group of smallholder beneficiaries. These are;
  - To train and organise an educational tour for Agricultural Demonstrators and farmers to Zambia;
  - To train the remaining number of extension officers and farmers as Trainer of Trainers (TOTs), (trained farmers will act as mentors to other farmers, as a form of on-hands practical experience training in CA and other techniques);
  - For TOTs to conduct the capacity development field training workshops in all districts; and
  - Plan and undertake refresher courses at district level for extension officers and smallholder farmers in CA and other relevant techniques.
- b) This draft plan proposes that the institutional strengthening process, if the ASSP is extended, will begin in the first quarter 2017, with the entire training process being completed by the end of the third quarter. The fourth quarter will be utilised for the conducting of an impact survey of these trainings on the targeted groups.
- c) Within this institutional strengthening strategic plan, a draft Training Tour plan is proposed, where the following targets are suggested:
  - At least 120 Agricultural Demonstrators (ADs) are trained in all districts; and
  - At least 540 Smallholder Farmers are targeted for training in all districts.
- d) It should be noted that on further consultation with the ASSP PMT, this strategic plan does not have a stand-alone budget, however there is confidence that savings in other aspects of this Component can be redirected to the implementation of this strategic plan. This would require IFAD approval once a proposed action plan and budget is completed, and ready to be integrated in a possible 2017-18 AWPB.
- e) Reviewing the effectiveness of this implementation plan will take place only at the end of the three quarters of the 2017-18 AWPB (subject to the project receiving an extension of at least twelve months). The targets being set maybe a little unrealistic; however, if over 50% of these targets are met it will provide critical mass to continue this initiative beyond the proposed extension period of the ASSP.

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6 ASSP Institutional Strengthening Strategic Plan: Draft 1, October 2016.

Agreed action	Responsibility	Agreed date
1. Agree on a scheme operation and management governance and plot development and financing model for the pilot Palapye Irrigation Scheme.	Director CP, Project manager ASSP, farmers	December 2016
2. Finalise mechanisation strategy	Director DCP	December 2016
3. Provide all required contract documents to accepted standard, and handover site to contractor	Project Manager ASSP	October 2016
4. Organise training of MoADFS engineers	Director DCP, Project manager University of Botswana, MOADFS and ASSP	January 2017
5. Set –up water quality monitoring system for the scheme	Project Manager ASSP	March 2017
6. Award contracts for feasibility and design studies of new schemes		January 2017
7. Upscale Training of Trainers (ToTs) activities for CA training Plan	Project Manager	November 2016
8. Undertake stakeholder consultations for the Institutional Strengthening Strategy and expedite its implementation	Knowledge Management Officer	January 2017
9. A refresher course on GIS applications for agriculture was to be implemented by the Botswana College of Agriculture	Knowledge Management Officer	November 2016

## Attachment 1: Conservation Agriculture Strategy

### 1.0 INTRODUCTION

In Botswana, small holder farming is still the dominant livelihood activity in the rural areas, and a substantial source of employment, food and income. However, the small holder arable agricultural sector has persistently under-performed due to harsh agro-ecologies and erratic weather conditions characterized by low soil fertility, recurrent droughts, and unpredictable weather patterns associated with climate change. Infrastructure deficits and unfavorable trading conditions have further compounded the fate of the poor and vulnerable. Government interventions have been motivated by objectives to achieve household and national food security by supporting agricultural development and incorporating an element of social protection of farmers against agricultural risks, vulnerability and market failure. In 2008, the Government initiated the Integrated Support Programme for Arable Agriculture Development (ISPAAD) to support and develop the agriculture sector.

In Botswana only about 0.7% of total land area is arable. [Crop](#) production is hampered by various factors including among others traditional farming methods, recurrent drought, erosion, and diseases. Most of the land under cultivation is in the eastern region. The principal crops for domestic use are sorghum, [maize](#), and millet (Cereal crops). The cereal crop harvests comprise less than 20% of the annual requirement of 320,000 tons. The current yield per hectare ranges from is 350 kg to 500kg for cereal crops and legumes it is 150 kg to 300kg for small holder farmers. Commercial farmers in Pandamatenga practice conservation agriculture and their yields range from 2000 -3000 kgs. Grain is usually imported from Zimbabwe, Zambia and South Africa. Smaller quantities of cowpeas, beans, and other pulses are also grown.

Agricultural research has been devoted to soil conservation, [grazing](#) experiments, and developing and [distributing](#) improved strains of grain. The construction of [dams](#) and the drilling of boreholes to tap [underground water](#) are continuing government programs. In early 1990, the government changed its official agricultural policy to emphasize the production of those foodstuffs which can be raised economically.

Increasing the productivity of rain fed agriculture, which still supplies some 80 percent of the country's food would make a significant impact on national food security. However, the potential to improve yields depends strongly on rainfall patterns. In dry areas, rainwater harvesting can both reduce risk and increase yields. there are various forms of rainwater harvesting: using microstructures in the field to direct water at specific plants or plant rows (in situ water conservation); capturing and directing external water from the catchment area to the field in which crops are grown (flood irrigation); and collecting external water from the catchment area and storing it in reservoirs, ponds and other structures for use during dry periods (storage for supplementary irrigation).

### 2.0 Climate in Botswana

Botswana's climate is semi-arid and thus faced with challenges associated with that climate i.e. high temperatures, low erratic and unevenly distributed rainfall and poor soils. The emerging and current climate change realities further exacerbates the already fragile farming, environmental related challenges, the type of implements and type of farming methods or practices therefore strategies that promote Conservation Agriculture (CA) remain critical and a natural response that should be considered in pursuing food security.

Botswana is signatory to several international agreements such as United Nation Forum on Convention for Climate Change (UNFCCC), United Nation Convention on Biodiversity (CBD) and United Nation Convention for Combating Desertification (UNCCD). Since these UN conventions are meant to address interrelated climate and environment concerns, action strategies such as those for conservation agriculture between the conventions and participating country players should be aligned to avoid

duplication and ignorance of partners (Department of Environmental Affairs, 2015. Ministry of Environment Wildlife and Tourism, 2011).

### **3.0 Conservation Agriculture**

Conservation Agriculture defined as a set of soil management practices that minimize the disruption of the soil's structure, composition and natural biodiversity. Despite high variability in the types of crops grown and specific management regimes, all forms of conservation agriculture share the following core three principles.

#### **3.1 Minimum soil disturbance**

No-till (NT) does not involve any loosening of the soil except for a very small area immediately surrounding where the seed is planted. This lack of soil disturbance serves to maintain overall soil structure, including aggregate stability and porosity, both of which promote the exchange of water and gases and provide habitat to an abundant and diverse population of soil biota.

#### **3.2 Permanent or semi-permanent soil cover**

Plants are left growing or killed and their residues left to decompose *in situ*. The primary function of this is to protect organic matter-enriched topsoil against chemical and physical weathering. Plant residues intercept energy from falling raindrops, provide a barrier from strong winds, and moderate temperatures, improving water infiltration and decreasing surface evaporation from sunlight. Surface cover also favors enhanced levels of biological activity, especially in tropical and sub-tropical areas.

#### **3.3 Regular crop rotations.**

Well-balanced crop rotations can neutralize many of the pest and disease problems associated with not tilling the soil, including the proliferation of insect pests and other harmful bacteria, viruses and fungi, by increasing the diversity and abundance of beneficial soil biota that can help keep pest and disease problems in check. Rotating crops also interrupts the life cycle of many weeds, thereby leading to a reduction in overall weed growth. These benefits translate to a typical yield increase of about 10 percent of crops grown in rotation, as compared to those grown in monoculture.

### **4.0 Overview of Conservation Agriculture in Botswana**

In Botswana, CA is mostly practiced by smallholder farmers at an integrated farm level. This is usually evident in their legume- cereal intercropping, use of hand planters and use of hand hoes for planting. Conventional traditional farming is also practiced whereby farmers broadcast, mix crops followed by mould-board. It is only a small proportion of commercial farmers who practice disc harrowing as one of the CA technique. The introduction of Government subsidies meant to assist farmers, had also contributed to farmers relying on government subsidies, instead of taking farming as a business hence a challenge that needs to be addressed. Subsidies include programmes such as ALDEP and ISPAAD which among others promoted the use of soil turning machinery such as mould-board and disc plough. Farmers are even financially assisted for using these conventional methods whereas little or no assistance is offered for conservation agriculture.

### **5.0 Economic Aspects of Conservation Agriculture as Adapted From FAO Publication**

Before analyzing the farm management and economic aspects of CA, it is illuminating to divide the adoption/adaptation process into four theoretical phases.

**5.1 First Phase** - Improvement of tillage techniques and adaptation occurs: During this first phase, no increase in farm output is foreseen. However a decreases in labour; time, draught animal or motorized power (reduction of production costs) would be realized. An increase in agro-chemical use, especially to control weeds is required substantially. Furthermore, there may be an increase in family expenses to compensate a probable (but not certain!) reduction of production in comparison with the conventional agriculture.

**5.2 Second Phase** - Improvement of soil conditions and fertility is realized. There is a decrease in labour, time and draught animal and motorized power which result in reduction of production costs. Increases in yields and consequently increase in net farm income has been observed.

**5.3 Third Phase** - Diversification of cropping pattern. Increased and more stable yields. Increased net farm income and soil fertility.

**5.4 Fourth Phase** - The integrated farming system is functioning smoothly. Stability in production and productivity. The full technical and economic advantages of conservation agriculture can be appreciated by the farmer.

## **6.0 Botswana CA Specific Challenges**

The challenges of climate changes prompted the adoption of CA as a farming system in Botswana. Low and unreliable rainfall patterns as well as spatial variations in both rainfall and temperature are the major challenges.

In September 2014, a workshop of various agriculture stakeholders i.e. practicing farmers, implementing agencies, scholars and researchers from the Botswana College of Agriculture and Ministry of Agriculture officials identified the main challenges to the uptake of CA in Botswana as follows;

- The country needs increased productivity but in a sustainable way, that protects soils and reduces resource overuse.
- Farmers were identified as very vulnerable to the effects of climate change and human-wildlife conflicts, but few solutions are offered to build resilience to their impacts.
- There is lack of education and awareness of improved farming technique and practices (e.g. Inadequate training/capacity building of extension officers).
- Gaps and inconsistencies in current policy fail to combine sustainable productivity, poverty alleviation, food insecurity, protecting soils and water, and environmental degradation.
- Non availability of CA implements and manufacturing suppliers.
- Policy conflicts inhibit new farming practice uptake.
- There are inconsistencies in linking policy with on ground, extension and implementation support.

The workshop concluded that if thoroughly supported, CA can be a major boost for Botswana's food production.

### **MoA Core functions**

The Ministry's core mandate hinges on four main areas as follows:

- (i) Development and Transfer of Agricultural Technologies
- (ii) Control Disease & Pests of Animals and Plants
- (iii) Developing Cooperatives and Farmers Associations and
- (iv) Conserving Agricultural Resources

It contributes towards a sustainable and competitive Agricultural sector by increasing agriculture output or production in the country; increasing agricultural Productivity; improving farmer incomes, generating employment opportunities; and developing an environment Conducive for agriculture and conservation of agricultural natural resources. MoA supports farmers to improve Agricultural productivity through development and transfer of agricultural technologies and diversifying the Industry so that it is competitive and sustainable <http://www.moa.gov.bw>).

### Department of crop production mission is

- To identify agricultural potential areas and stimulate its development and growth by facilitating the adoption of innovative production technologies by the farming community.

### 7.0 CROP PRODUCTION STAKE HOLDERS IDENTIFICATION.

Stakeholders who interact with the department of crop production in as far as conservation agriculture is concerned were identified. This stakeholders are key in the implementation of the conservation agriculture strategy. The stakeholders are as follows;

- Learning Institutions (BUAN, BUIST, UB, schools, Brigades, LEA)
- Inputs suppliers (Seedco, Crosscorn, Agri-fountain, BAMB, The Agric Shop etc)
- Financial Institutions (NDB, CEDA, FNB, Barclays, Stanbic, BancABC etc)
- Agro-processors (Millers, Breweries, SPEDU, )
- Consumers (schools, Hotels, hospitals, Food Resources, etc)
- Farmers
- Farmers Associations
- Other Ministries (Education, MEWT, LGRD, MMEWR, MYSC, MLH, MoH)
- Other Departments [Agri-Business, DAR, DARSPD, Animal Production]
- Non-Governmental Organizations (Pabalelo trust, Ecoexist, Birdlife, Bocongo, Bocobonet, ZCCT, etc)
- Research Institutions (Bitri, NAFTC, BUANR, BUIST, DAR, UB, BIDPA, National Strategy Office, Statistics Botswana)
- Machinery manufactures (SARO, local welders and fabricators)
- Implements suppliers
- Media
- Policy makers
- Marketing Institutions (BAMB)
- Private Soil Test Labs
- Traders and Retailers
- Donor Agencies

### Stakeholders plotted on significant vs influence grid

	Significant Influence	Some Influence	Little Influence	Non Influence
Significant Importance	15 Policy makers 11 Research Institutions (Bitri, NAFTC, BCA,BUIST,DAR, UB) 7 Farmers Associations 8.Farmers (Rainfed)  9 Sister Departments [Agri-Business, Research,	1 Learning Institutions (BCA, BUIST, UB, schools, Brigades, LEA)		4 Agro-processors (Millers, Breweries, SPEEDU, )

Some Importance		8 Other Ministries (Education, MEWT, LGRD, MMEWR) 10 Non-Governmental Organizations (Pabalelo trust, Ecoexist, Birdlife, Bocongo, Bocobonet)	3 Financial Institutions (NDB, CEDA, FNB, Barclays, etc)	12 Machinery manufactures (SARO, Kanye, Panda) 13 Implements suppliers (Haskins, etc)
Little Importance	14 Media		2 Inputs suppliers (Seedco, Crosscorn, Agrifountain, etc) 16 Marketing Institutions ( BAMB,)	
No Importance				5 Consumers (schools, Hotels, hospitals, FRS, etc)

### Stakeholders plotted on influence vs Interest grid

#### Influence/ Interest grid

Low Influence high	14 Private Media	6 Farmers (rain fed) 2 Inputs suppliers (Seedco, Crosscorn, Agrifountain, etc) 3 Financial Institutions (NDB, CEDA, FNB, Barclays, etc) 4 Agro-processors (Millers, Breweries, SPEEDU, ) 7 Farmers Associations 9 Sister Departments [Agri-Business, Research, Animal Production] 11 Research Institutions (Bitri, NAFTC, BCA, BUIST, DAR, UB) 15 Policy makers 16 Marketing Institutions ( BAMB,)
	5 Consumers (schools, Hotels, hospitals, FRS, etc)	1 Learning Institutions (BCA, BUIST, UB, schools, Brigades, LEA) 10 Non-Governmental Organizations (Pabalelo trust, Ecoexist, Birdlife, Bocongo, Bocobonet) 12 Machinery manufactures (SARO, Kanye, Panda) 13 Implements suppliers (Haskins, 8 Other Ministries (Education, MEWT, LGRD, MMEWR, Lands MIST
	Low Interest High	

## 8.1 SWOT ANALYSIS FOR CROP PRODUCTION AS RELATES TO CA STRATEGY

A review of the Department of Crop Production Strengths, Weaknesses, Opportunities and Threats with respect to Conservation Agriculture is as presented below;

<b>Strengths</b> (internal) 1. Wide coverage of extension services- 2. Support programs (ISPAAD) and projects 3. Facilitation access to credit 4. Availability of farmer training centers 5. <i>Well educated staff</i> 6. <i>Availability of appropriate technologies</i> 7. <i>Availability of demonstration implements at Districts</i> 8. Regular progress meetings	<b>Weakness</b> (internal) 1. Inadequate knowledge on CA 2. Poor linkage of extension and research 3. Inadequate ICT equipment's 4. Inadequate research in CA 5. Lack of coordination of CA activities 6. lack of proper monitoring and evaluation system 7. Poor project implementation 8. Inadequate machinery and implements 9. low staff morale/disgruntled staff 10. Poor documentation and packaging of information 11. Lack of collaborative culture
<b>Opportunities</b> (external)	<b>Threats</b> ( external)

1.Agricultural credit Guarantee Scheme (ACGS) 2.Access to credit i.e. CEDA, NDB 3.Availability of arable land 4.Availability Farmers Association 5. Availability of market for CA implements. 6.Good bilateral relationships and trade agreements 7. Availability of input suppliers( funding, training) 8. Donor funding 9. Government/ political support 10. Stable economy (currency & inflation)	1.Climate change 2.Little commitment of farmers/part time farmers 3.Infestation of weeds ,pests and diseases 4. Inadequate infrastructure at farm lands. 5.Low young farmers succession on farming 6.Rural / urban migration 7.Human wildlife conflict 8.Failure of farmers to utilize available arable land 9.Shortage of CA implements at farm lands 10. Conflicting programmes
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## 9.0 STRATEGIES IN IMPLEMENTING CA IN BOTSWANA.

In order for Batswana to increase production and improve food security in the midst of climate change, adoption of Conservation Agriculture is one alternative intervention to be considered.

**9.1 Vision:** To attain food security and increase income at both household and national level.

**9.2 Goal:** To increase crop production through sustainable use of the environment.

### 9.3 Objectives

The overall objectives of the CA strategy are as follows:

1. To increase average crop yields from 200kg/ha to 1000kg/ha
2. To reduce production costs and maximize returns
3. To conserve and enhance biodiversity
4. To enhance good crop production practices

### 9.4 Framework

Creating an enabling environment, Mainstreaming CA in government agriculture development, education and extension services, Knowledge management and information management, Capacity building, Research and Development and Monitoring & Evaluation of CA adoption & implementation will serve as the key strategic issues to be addressed in promoting Conservation Agriculture in Botswana. Once this strategies are adopted and implemented upscaling CA in Botswana is anticipated to be favorable.

## 9.5 STRATEGIC ISSUES FOR INTERVENTION

### 9.5.1 CREATING AN ENABLING ENVIRONMENT FOR CA ADOPTION

CA adoption has been very low due to lack of resources for both the staff and farmers, it is therefore important that extension service be supported fully to improve the effectiveness of services provided.

#### Recommendations

- Sensitize policy makers
- Training extension staff as trainers of trainers
- Promote farmer field school
- Improve access to credit to both farmers and suppliers
- Introduce CA subsidies and schemes
- CA aspects included in ISPAAD guidelines.

### 9.5.2 MAINSTREAMING CA IN GOVERNMENT AGRICULTURE DEVELOPMENT, EDUCATION AND EXTENSION SERVICES

It is imported that extension approach to be used to roll out CA be clearly defined and followed as this will speed up adoption rate. Also ways in which CA can be shared should be in place.

### **Recommendations**

- Meeting with curriculum development staff
- Develop unit standard on CA
- Conduct 5 demonstrations at RTC and 40 at farmer's fields

### **9.5.3 KNOWLEDGE MANAGEMENT AND INFORMATION MANAGEMENT**

To increase the adoption rate of CA it is crucial that all stakeholders understand CA concepts and able to share experiences on how best to practice CA. information materials on CA are to be availed and accessible for extension officers and farmers.

### **Recommendations**

- Documentation of lesson learned.
- Avail ICT support to 270 extension staff
- Develop 4 promotional materials on CA
- Develop television documentaries on CA and radio interviews
- Develop information management system

### **9.5.4 CA CAPACITY BUILDING.**

Understanding of CA is still a challenge, therefore capacity building will enhance more knowledge and technical skills to both the farmers and staff.

### **Recommendations**

Undertake 3 benchmarking tours on CA and 6 short courses  
Conduct training on CA for staff and relevant stakeholders  
Develop guidelines on CA demonstration  
Develop CA selection criteria  
Resuscitate 89 farmer field schools on clustered farms

### **9.5.5 RESEARCH AND DEVELOPMENT ASPECT OF CA**

It is advisable that thorough research findings on CA techniques be conducted and recommendations implemented.

### **Recommendations**

- Identify previous and current research work done.
- Continue with research and development for climate change intervention.

### **9.5.6 IMPLEMENTATION AND MONITORING OF CA STRATEGY IMPLEMENTATION.**

To effectively and efficiently monitor the processes and implementation of the conservation agriculture it is critical that the pathway for execution of CA is defined clearly.

### **Recommendations**

- Carryout baseline study (data)
- Design the monitoring plan that will include the target and measure for every activity.

- Conduct an impact needs assessment
- Monitor CA implementation
- Evaluate CA implementation

## 10.0 IMPLEMENTATION PLAN

Strategy	Specific Objectives	Activities	Expected Output	Indicators	By Whom	When	Estimated Cost(BWP)
1. <b>Creating enabling environment for CA adoption</b>	Public awareness/sensitize and educate the public	Sensitize key policy makers Address kgotla meetings -Use of media (TV documentary) - Under take Bench marking on CA (3 Tours, 6 short courses etc.)	Cabinet, MPs and full councils Sensitized -  Develop 6 educational clips on CA	Number addressed-  Number of clips developed	Director crop production/DAC-  CAIPRO	2016/2017  2016/2017	15 000.00  20 000.00
2. <b>Build quality CA workforce</b>	Raise knowledge and awareness on CA through extension services	Train staff as trainers of trainers (TOT).	100 extension staff trained	Number	Director crop production	2016/2017	150 000.00
		TOT's cascades CA principles to extension staff.	305 employees trained on CA.	Number trained	District Agricultural Coordinator(DAC)	2016/2017	100 000.00
	Create opportunity on local investments on CA machinery manufacturing	Improve access to credit to both farmers & suppliers	Access to credit	Number and type			
		Introduce CA subsidies and schemes	Subsidies and scheme	Number and type			
3. <b>Mainstreaming CA in government agriculture development and education</b> <b>Lack/strengthen of collaborative culture</b>	Influence the inclusion of CA in the school's curriculum	Hold workshops /meetings with the curriculum development staff.					
	Introduce CA courses at RTC	Develop unit standards on CA Conduct 5 demonstrations at RTC's and 82 at farmer's fields	Unit Standards	Number of units			145 000.00
	Collaborate with other Ministries/institutions	Identify stakeholders Call consultative meetings					
4. <b>Knowledge Management</b>	Improve information management	Documentation of lesson learned from demonstration and meetings. Avail ICT support to 270 extension staff.	ICT support availed				
		Develop 4 promotional materials (Pamphlets &/manuals ) on CA quarterly	promotional materials developed	Number	2016/2017	MoA	
		Develop 6 television documentaries on CA	Documentaries Developed	Number	2016/2017	CAIPRO	
		Develop information management system	Data base developed	Number	2016/2017	DCP	
5. <b>CA Capacity Building</b>	Enhancing CA knowledge on farmers.	Under take Bench marking on CA (3 Tours, 6 short courses etc.)	Tours & courses conducted	Number	2016/2017	DCP/DAC	
		Conduct training on CA for farmers and relevant stakeholders.	Training conducted	number of farmers trained	2016/2017	DCP/DAC	

Promote farmer field schools	Develop guidelines on CA demonstration	Guidelines Developed 20 000 targeted farmers trained	Guidelines	2016/2017	District Corp Production officer (DCPO	120 000.00
	Develop farmer field school selection criteria	Selection criteria developed.	Number	2016/2017	DAC	
	Resuscitate 89 farmer field schools on clustered farms.	farmers field schools	numbers			
	Enhance good CA practice culture	Develop reward menu Implement reward menu	Good CA culture enhanced	number		
<b>6. Research and Development Aspect of CA</b>	To research and innovate on CA for local adaptation	Identify previous and current research work done Research and development. Of local adaptable technologies.				
<b>7. Monitoring &amp; Evaluation of CA adoption &amp; implementation</b>	Set up monitoring and evaluation tools & system	Carry out baseline study.	CA Baseline conducted	Level of CA understanding/P roduction	M&E Officer	300 000.00
		Monitor CA adoption.	CA technologies adopted	No. adopting technology No. practicing Type of machinery used.		200 000.00
		Conduct annual outcome surveys (AOS) Conduct an Impact assessment (evaluation)	AOS conducted Impact assessment conducted	Number of AOS conducted Level of adoption		500 000.00
					Inception of the intervention. Throughout (continuous monitoring.)	
					Annually End of the intervention (or every 3 years)	

## References

- FAO; AG: Conservation Agriculture- [www.fao.org/ag/ca/](http://www.fao.org/ag/ca/)
- Ecoexist; Conservation Agriculture Policy Brief Draft, November 2014
- III.MOA, DAR Arable Crops Annual report, 1985-1986
- MOA, DAR Arable Crops Annual report, 1986-1987
- MOA, DAR Arable Crops Annual report, 1987-1988
- Eco-exist (2014) Conservation Policy Brief draft

NB: Total number of targeted farmers will be 20,000 for the five year period

## IMPLEMENTATION PLAN

To effectively implement Conservation Agriculture (CA), the three levels of farmers and training of 3 lead farmers/ sub district will be enhanced.

### Activities

- Design CA packages for the respective categories of farmers i.e. small scale, emerging & commercial farmers. These should be inclusive in embracing hand, animal and tractor draught power usage.
- Focus on small scale levels and use lead farmer model to establish learning points where CA methods are applied and let farmers see results. These areas and lead farmers need to be identified.
- Establish the agro-ecological zones in terms of soils and rainfall patterns and recommend the relevant CA methods and/or practices to be done in each of these
- Identified resources needed for CA
- Equipment – rippers, rain gauge, planters (tractor drawn)
- Training manuals for staff and farmers
- Appropriate seeds for the respective zones
- Animal drawn ripper/planter with fertilizer hopper
- Hand ploughing and planting

### Target

3 lead farmers per sub district - 1<sup>st</sup> year – teach lead farmer – land preparation, planting techniques, weed control and timeliness of the operations.

**Breakdown of activities**

Level of Farmer	Ca Technology and Associated Activities	Implements to be Procured	Training Required	Number of Targeted Farmers
<b>1. Hand operated implements</b> (Applicable to farmers without implements at all)	<b>Basin method</b> (Hoe made permanent planting basins) <ul style="list-style-type: none"> <li>• Preparation of basins</li> <li>• Application of inputs (manures, fertilizer, lime)</li> <li>• in the basins and back filling Hand planting after good rains</li> <li>• Spray for weeds</li> </ul>	<ul style="list-style-type: none"> <li>• Hoes</li> <li>• Strings for calibrating spacing between planting basins</li> <li>• Knap sack sprayers</li> </ul>	<ul style="list-style-type: none"> <li>• Land preparation</li> <li>• Planting techniques</li> <li>• Weed management for rotation based CA/CF systems.</li> </ul>	30 farmers for the first year to be trained as lead farmers in the Farmers field schools (FFS) with 10 farmers in each FFS. Therefore total of <b>300 farmers for the first year.</b>
<b>2. Animal drawn implements</b> (For farmers who have access to draft animals)	<b>Animal ripping</b> <ul style="list-style-type: none"> <li>• Animal ripping</li> <li>• Application of inputs in the ripped lines and back filling</li> <li>• Hand planting or</li> </ul>	<ul style="list-style-type: none"> <li>• Animal drawn rippers</li> <li>• Animal drawn ripper planters</li> <li>• Knap sack sprayers</li> </ul>	<ul style="list-style-type: none"> <li>• Land preparation-Animal ripping</li> <li>• Planting techniques</li> <li>• Weed</li> </ul>	30 farmers for the first year to be trained as lead farmers in the Farmers field schools (FFS) with 10 farmers in

	use ripper planter to plant in the ripped lines after good rains • Spray for weeds		management for rotation based CA/CF systems	each FFS. Therefore total of <b>300 farmers for the first year</b>
<b>3. Tractor drawn implements</b> (Farmers with access to tractors)	<b>Tractor ripping</b> • Tractor ripping • Apply inputs on ripped lines No till planter/ animal drawn planter/ hand planting on the ripped lines	• Tractor rippers • Tractor drawn no till planters • Animal drawn planters • Booms sprayers	• Land preparation- Tractor ripping • Planting techniques • Weed management for rotation based CA/CF systems	30 farmers for the first year to be trained as lead farmers in the Farmers field schools (FFS) with 10 farmers in each FFS. Therefore total of <b>300 farmers for the first year</b>

## Annex 4: Technical Report on Targeting, Gender, and Youth

1. Gender focus in ASSP is rated moderately satisfactory. At design, gender and youth responsive targeting mechanism had been developed for each sub-component. This was further strengthened by a Gender and Youth Study that was undertaken as part of the start-up activities. The mission was however informed that at implementation, attention to gender and youth in ASSP has been more by default than deliberate effort as guided by these two documents. In the selection of beneficiaries for the Palapye Waste Water irrigation pilot scheme, quotas for women and youth were achieved: 24 small holder farmers were selected with 30% representing various groups – youth, women and disadvantaged groups.

125. However, the key challenge for these groups (as in other irrigation schemes visited by the mission team, such as Dikabeya Dam) is raising funds to finance the infield irrigation system and production costs. There are some government funds available for supporting women and youth. However, some potential beneficiaries often lack capacity or sufficient knowledge and skills on preparing the detailed business proposals required. The situation is further complicated by requirement for collateral, whereby applicants are expected to prove ownership (or at least lease) of land. In an effort to support the youth, ASSP has written to the Ministry of Youth Empowerment, Sport and Culture Development requesting for prioritization of proposals from young women and men with plots in the Palapye irrigation scheme with regard to financial support. It was agreed that ASSP would work closely with the Youth Focal Person at the Ministry of Agricultural Development and Food Security in supporting youth empowerment in ASSP including provision of appropriate information and guidance on accessing available government funds. Some of the government funds available are highlighted in Box 1.

### **Box 1: Government Funds Targeted to Women, Youth and People Living with HIV**

**Young Farmers' Fund (YFF)** –operated through CEDA, provides agricultural loans (with a ceiling per project of P500 000 at subsidized interest rates of 5% under concessional terms for any young Batswana (aged 18 - 35 years) interested in engaging in sustainable competitive farming businesses. It includes requisite attachment training, mentoring and monitoring support, as well as internships. All applicants are required to submit viable business proposals. YFF has linkages with a number of relevant ministries and agencies

**Youth Development Fund** - was introduced in the financial year 2009/2010 following the then Out of School Youth Programme which gave youth grants amounting to P50 000.00. YDF gives loans of up to a maximum of P100 000.00, 50% of whatever the young person has been given being a loan payable in 60 months and the other 50% being a grant. Young people come up with business ideas of their own

**The Backyard Garden Initiative** – falls under the Office of the President within the poverty eradication programme started in January 2011. The package covers gardening, marketing and financial management support with the aim of developing 200 gardens within the 15 constituencies targeted in its first phase. Main target groups are registered destitute, deregistered destitute, rehabilitation and Ipelegeng (public works) beneficiaries,

**Women Fund** – is administered by Ministry of Ministry of Nationality, Immigration and Gender Affairs and is aimed at providing financial support to Individual Women Shareholders, Women's Non-Governmental Organisations, Community Based Businesses and Women's Groups

126. The Ministry of Agricultural Development and Food Security is revitalizing its gender mainstreaming efforts spearheaded by the Department of Research, Statistics and Policy. The other Departments in the ministry have been asked to nominate Focal Persons to support the process. The M & E officer at ASSP has informally been asked to be a Gender Focal Person (GFP) to represent her department. She has informally been undertaking the role of Gender Focal Person at ASSP. The mission recommends that her role as the project level GFP is formalized. To support this initiative, generic Terms of Reference for this role are suggested in Attachment 1 to this Annex with the expectation that they will be adapted to suit ASSP's situation. Part of the responsibilities will include initiating sensitization and trainings on gender and youth as foreseen at design - but has not been undertaken. The National Gender Policy Framework (which is currently being updated) compels all sectors to develop their own "Sectoral Gender Policy Frameworks", to address gender issues in their

respective areas. To this end, the Ministry of Agriculture development the Agricultural Sector Gender Policy Framework in ASGPF 2003. The process of reviewing and updating this policy based on emerging issues has started as part of revitalizing gender mainstreaming in the ministry and it is recommended that ASSP takes an active role in this process.

127. Under subcomponent 1.1, the mission observed that the draft mechanization strategy is gender neutral and recommends that gender and youth considerations relating to mechanization of agriculture are addressed in the strategy.

128. **Targeting:** ASSP targets to benefit approximately 20,000 farming households. So far 10,213 farmers have been identified in subcomponent 1.2 (improved rain-fed practices). The beneficiary selection criteria shared with the mission was silent on gender and youth inclusion – but these categories were achieved by default. In the Palapye waste water irrigation project, 35 beneficiaries were selected in 2014; (9 youth, 13 females and 13 males). The Farmers have been organized into an association, *Palapye Farmers Link*, whose registration process is on-going. During interactions with the mission, the farmers appreciated various trainings that have been provided but expressed concern over the delay of the project implementation. They are however using the plots to produce rain-fed crops as they wait for the irrigation scheme to transition to horticulture farming. In the last season, they produced 26 bags of cow peas in 7.5 hectares of land.

129. The project has trained 1,163 farmers in various fields (mainly conservation agriculture and mechanization). Of these, 484 are men; 461 women, 112 young men, and 67 young women. While sex and age disaggregated data on participation in training has been regularly tracked, analysis and impact of the training is also needed in order to understand the level of appropriateness and adaption of new skills and practices. Conservation agriculture initiatives, for example, should be gender responsive particularly in reducing the labour burden and drudgery for women and cater for the majority of users of the technology who are women.

## **Attachment 1: Terms of Reference for gender/youth focal point in ASSP**

### **Roles and responsibilities**

Under the general supervision of the Project Manager, the project level Gender/Youth Focal Point will perform the activities in three main areas to support project implementation, communication and advocacy.

### **Implementation of the project**

- Work with each project specialist to identify opportunities for strengthening implementation from a gender and youth perspective.
- Review basic project implementation processes and outputs to provide feedback and suggestions on how to achieve best possible project outcomes with respect to targeting, gender equity and women's empowerment/youth inclusion.
- Organize gender and youth sensitization and trainings for different implementers and stakeholders
- Ensure adequate attention is paid to gender and youth dimensions of the project in the following:
  - Preparation of the Annual Work Plan and Budget
  - Project Progress Reports
  - Project Supervision
  - Human Resource Management of project staff
- Establishing a more systematic approach to tracking project performance and impact from a gender and youth perspective
- Ensure ASSP collects and analysis gender and age disaggregated data and information

### **Communication and Knowledge Management**

- Liaise with IFAD headquarters and regional level, on all questions regarding gender/youth from project design through to implementation, knowledge sharing and other requests.
- Serve as a channel of communication between the project and others working on gender/youth issues in government, implementing agencies, other development projects, and IFAD.
- Assist colleagues working on the project to access the knowledge and information they may need about gender/youth issues, including sharing best practices.
- Work with ASSP KM specialist to capture gender and youth related information, stories and good practices for sharing and lesson learning

### **Advocacy**

- Be familiar with gender/youth policies of the institutions you work with including any national policies, policies of ministries, implementing institutions and financing agencies, including IFAD.
- Support the on-going gender mainstreaming processes at the Ministry of Agriculture
- Sensitize all project staff and partners about the necessity to ensure that project outcomes should be achieved with respect for the principle of gender equity and women's empowerment in line with the objectives of IFAD's policy on gender.

## Annex 5: ASSP Exit Strategy

### BACKGROUND INFORMATION

Agricultural Services Support Project (ASSP) is a five-year project which started in 2012 and will end in March 2017. This is a partnership between Government of Botswana (GoB), represented by Ministry of Finance and Economic Development through Ministry of Agricultural Development and Food Security on the one hand and International Fund for Agricultural Development (IFAD) on the other geared towards addressing low arable agricultural productivity and rural poverty in Botswana targeting smallholder farmers especially women and youth.

### ASSP FINANCING

Total project financing is US\$ 25.02 million of which GoB contributions are US\$ 19.37 million or 77.5% and IFAD contributions are US\$ 5.65 million or 22.5% as loan (US\$ 4.04 million) and grant (US\$ 1.61 million) over the 5 year period meaning that the major financier of ASSP is GoB.

### OBJECTIVE OF ASSP

The thrust of this project is to contribute towards economic diversification, reduction of rural poverty as well as food insecurity to achieve improved livelihoods of rural communities. Furthermore, the project desires to achieve a viable and sustainable smallholder agricultural sector that does not rely on government subsidies. To drive the realization of the project objectives, (ASSP) is anchored on three components and six sub-components as follows: **Sustainable Agricultural Production** (Agricultural Mechanisation; Improved Rain-fed agricultural Practices; and Wastewater Irrigation Scheme), **Enabling Environment for Smallholder Agriculture** (Improved Delivery of Extension Services; Agricultural Service Centres; and Institutional Strengthening), and **Project Management**.

In view of the fact that the project will end in March 2017, there is need to come up with an exit strategy which will define sustainability and continuity of the project's initiatives post completion in March 2017. This strategy recognizes the fact that the project is aligned to Government of Botswana institutional structures, hence all assets and activities will be transferred to relevant ministries and departments for continuity. Here under is the table showing the exit strategy.

**Table 1: Exit strategy for ASSP**

Component	Sub Component	Key institutions/ agencies involved in implementation	Key Activities/ Assets	Potential successors	Process of Transfer	Financing implications	Comments
<b>1.0 Sustainable Agricultural Production</b>	1.1 Mechanisation	Project Management Team (PMT), Ministry of Agriculture, Ministry of Finance and Crop Production department	Training on Mechanisation (Tractor repair, servicing and maintenance, planter calibration, boom sprayer calibration), farm operations especially minimum tillage.	Crop Production Department	Already these activities are implemented by DCP however a workshop will be conducted at the end of the project for official transfer	Through its recurrent budget the Ministry of Agriculture will put up a budget to support this initiative.	The project is aligned to Ministry of agriculture mandate hence this training will continue to be carried out in support of smallholder farmers.
	1.1 Mechanisation	Project Management Team (PMT), Ministry of Agriculture, Ministry of Finance and Crop Production department	CA Implements bought by the project.	Crop Production	All Farm Implements will be transferred to Ministry of Agriculture and become government property.	Through its recurrent budget the Ministry of Agriculture will put up a budget to support this initiative.	The project is aligned to Ministry of agriculture mandate hence this training will continue to be carried out in support of smallholder farmers
	1.2 Improved Rain-fed	Project Management Team (PMT), Ministry of Agriculture, Ministry of Finance and Crop Production department and farmers	Training on Conservation Agriculture (CA) Spearheading of technology transfer, adoption and adaptation.	Crop Production	Already these activities are implemented by DCP however a workshop will be conducted at the end of the project for official transfer	Through its recurrent budget the Ministry of Agriculture will put up a budget to support this initiative.	The project is aligned to Ministry of agriculture mandate hence this training will continue to be carried out in support of smallholder farmers
	1.3 Pilot Waste water Irrigation Scheme	Project Management Team (PMT), Ministry of Agriculture, Ministry of Finance and Crop Production department, Water Utilities Corporation and farmers Ministry of Lands	Construction of the Irrigation Scheme Production of vegetables by farmers Market access.	Crop Production and farmers	The scheme will have been handed over to farmers to run through leased period. A dedicated extension officers will be provided to support farmers.	Farmers facilitated to get loans from financing institution Each farmer to contribute to the repair, operations and	Farmers have been well capacitated to run the scheme through trainings and capacity building. Monitoring to be continuous by MoA

Component	Sub Component	Key institutions/ agencies involved in implementation	Key Activities/ Assets	Potential successors	Process Transfer	Financing implications	Comments
					Production will be linked to Market to enhance sustainability	maintenance of the scheme. This will require farmers to be highly organized.	
2.0 Enabling environment for smallholder Agriculture.	2.1 Improved Delivery of Extension services	Project Management Team (PMT), Ministry of Agriculture, Ministry of Finance and Crop Production department and farmers	Capacity building on extension service providers and subject matter specialist as well as farmers to ensure sustainability.	Crop Production	Already these activities are been implemented by DCP however a workshop will be conducted at the end of the project for official transfer	MoA to take over through recurrent budget	
	2.1 Improved Delivery of Extension services	Project Management Team (PMT), Ministry of Agriculture, Ministry of Finance and Crop Production department Ministry of Transport and farmers	Vehicles	Crop Production Central Transport Organisation (CTO)	All vehicles have been registered under government except for one which is been used by the irrigation officer for Irrigation Scheme construction supervision presently. At the end of the project it will revert to government and be registered under government fleet.	The service and maintenance will be done by MoA and CTO as such recurrent budget will be used.	The vehicle currently registered under the contractor being used by ASSP officers to monitor the Pilot waste water Irrigation scheme will revert to government at the end of the project.
	2.2 Agricultural Service Centres	Project Management Team (PMT), Ministry of Agriculture, and Ministry of Finance and Crop Production department, Ministry of lands and Ministry of	Overseeing Agriculture Service Centres construction.	Ministry of Lands Ministry of Finance Ministry of?? Building and Engineering	Ministry of Lands for lease administration Ministry of Finance will provide government asset register. DBES will provide	All these will be catered for under government by the respective stakeholder's budgets.	

Component	Sub Component	Key institutions/ agencies involved in implementation	Key Activities/ Assets	Potential successors	Process of Transfer	Financing implications	Comments
		Infrastructure (Department of Building and Engineering Services.		Services (DBES). Private sectors	repair and maintenance at the end of defect liability period. Private Sector will operationalize the service centre on fixed leased period		
	2.3 Institutional strengthening.	Project Management Team (PMT), Ministry of Agriculture, Ministry of Finance and Crop Production department, and farmers Department of Agricultural Research, Planning & Statistics	Monitoring and Evaluation and Information Management Systems (MEIMS)	MoA	The MEIMS developed by the project will serve as a basis to develop the same for MoA. Records for the project will be kept for a period of 10 years after closure for audit and reference purposes. Development of Information Management System & Monitoring and Evaluation tool for the project and the Ministry	MoA shall develop a budget to support this initiative.	